AUGUST 1, 1936

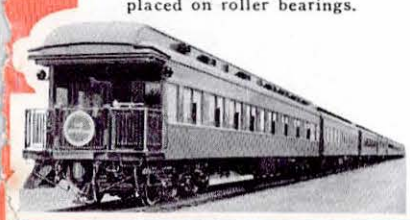
Railway Age

Founded in 1856

McCARTNEY LIBRARY
GENEVA COLLEGE

COMFORT . . . KEYNOTE OF PROFITABLE PUBLIC SERVICE

"Olympian Limited" Milwaukee Road, first transcontinental train to be placed on roller bearings.



The American public is comfort conscious to a greater degree than ever before. Wherever you go, comfort is the keynote of increased patronage. In hotels, theaters, stores—and railroad trains, comfort is the magnet that attracts and holds.

American railroads are rising to renewed success on a wave of comfort that is sweeping the country. Americans want speed—and more speed—but they are just as insistent on easy, restful riding.

Gentle, jarless starting and smooth, swayless running are essentials of comfort in railroad train operation that rank with modern air conditioning in promoting increased patronage. From the "Olympian Limited" of the Milwaukee Road — first transcontinental train ever to be placed on roller bearings (1926) — to the New York Central "Mercury", latest of modern streamliners, many famous Timken Bearing Equipped trains have definitely proved that comfort pays.

The operators of these trains know that the privilege of riding in roller bearing cars has been responsible for substantial increases in passenger revenue. It is one of the strongest sales points any railroad can have. How many of your trains are Timken-equipped?

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *TAPERED ROLLER* BEARINGS

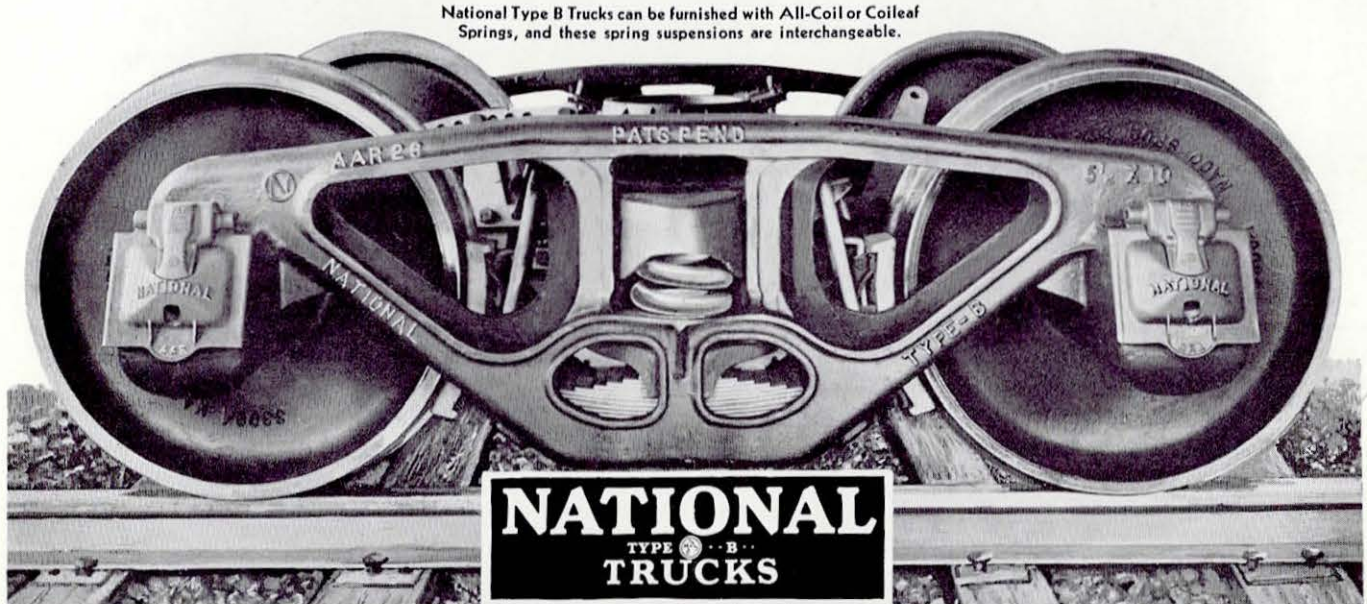
PAY DIVIDENDS In Reduced Maintenance

SPRING planks are eliminated in National Type B Trucks—brake beam safety ledges are cast integral with side frames—spring capacity is increased—number of parts is reduced—lateral motion is spring cushioned—total weight is reduced—wheel changes are effected quickly and easily, without dismantling any of the main truck members.

Every one of these unique National Truck features means reduced maintenance expenditures.

For this reason, and because of their lower initial cost—their ability to handle greater revenue loads—and because of the unsurpassed, trouble-free performance obtained ever since their inception—National B Trucks are thoroughly established today as economical, money-saving essentials for both new and old freight equipment.

National Type B Trucks can be furnished with All-Coil or Coileaf Springs, and these spring suspensions are interchangeable.



NATIONAL
TYPE B
TRUCKS

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

General Offices: CLEVELAND, OHIO

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco

Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

Canadian Representatives: Railway and Power Engineering Corporation, Ltd., Toronto and Montreal

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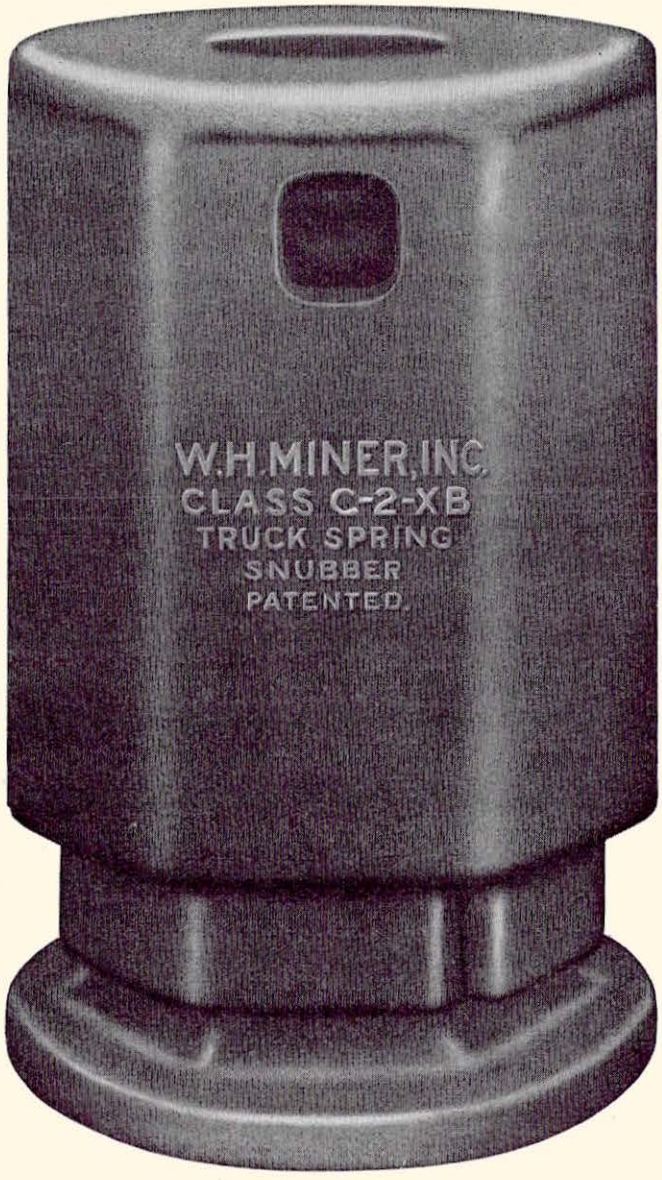
MINER TRUCK SPRING SNUBBER



MINER SNUBBERS do their work well under all service conditions. They are the practical solution of the car stabilization problem because they do not require any change in the standard truck spring arrangement.

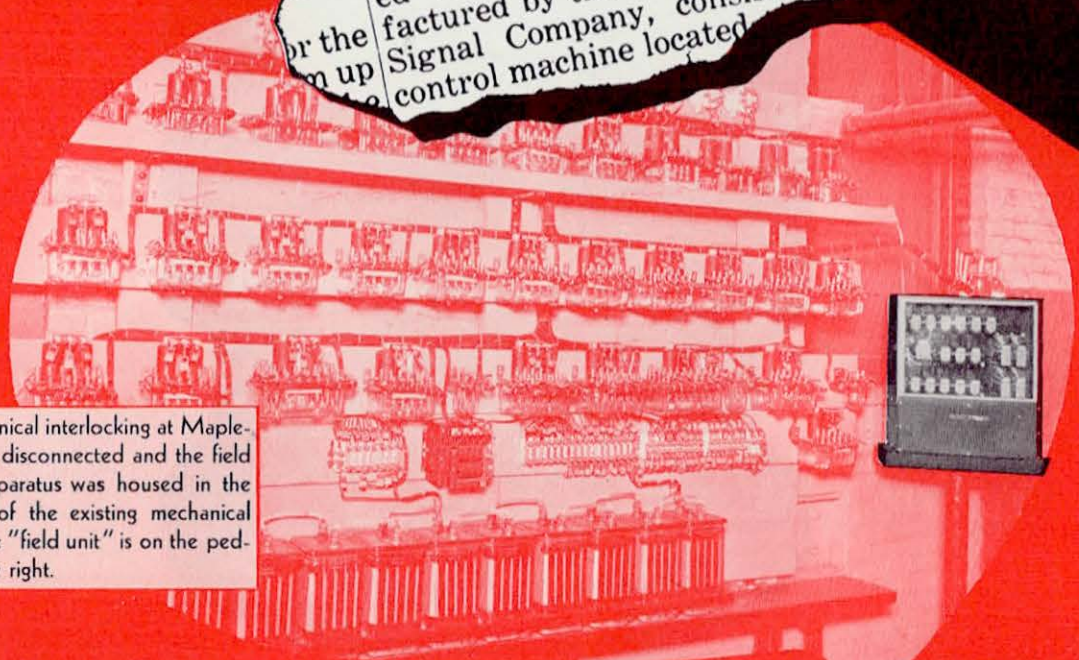
MINER SNUBBERS are an investment in economy that will bring sure and substantial returns.

W. H. MINER, INC., CHICAGO

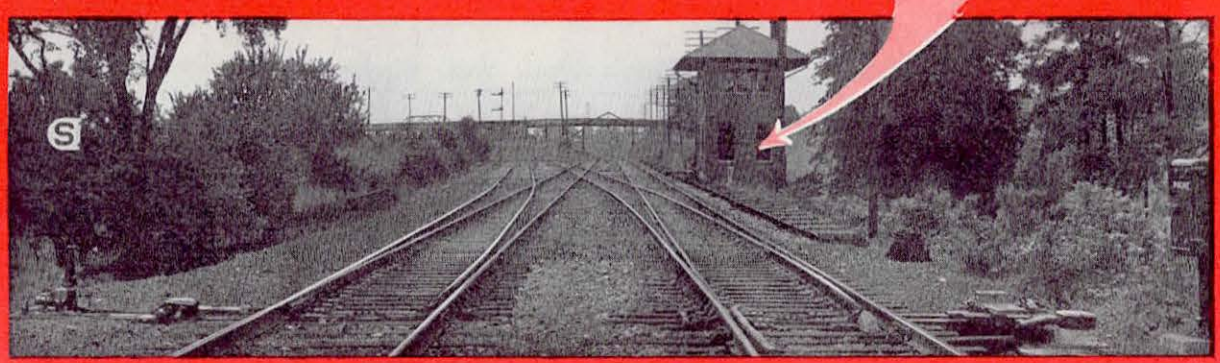
Conservation League.

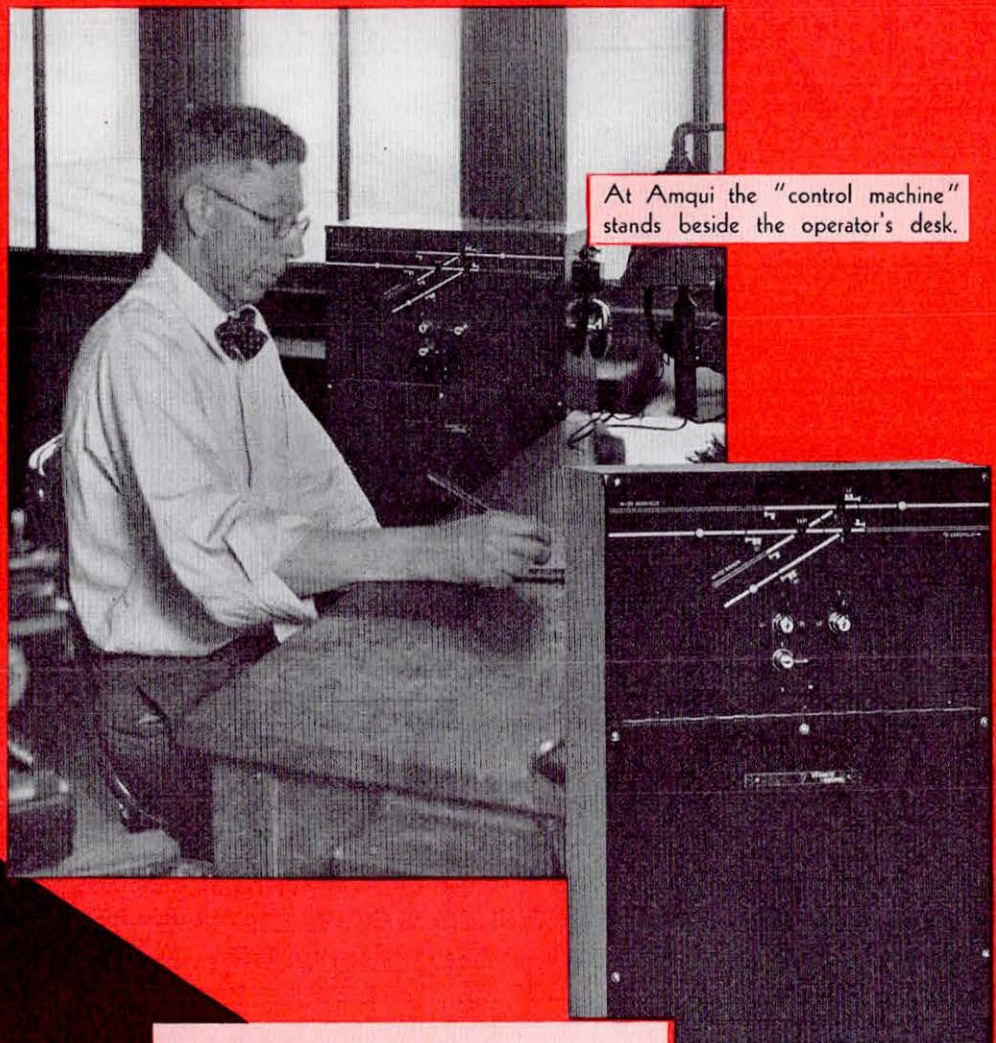
L. AND N. R. R. INSTALLS G-R-S CODED REMOTE CONTROL SYSTEM

Maplewood, Tenn.—A double track junction at Maplewood, Tenn. is now controlled from Amqui, Tenn., 4⅓ miles distant. The system of control, known as "coded remote control" and manufactured by the General Railway Signal Company, consists of a control machine located



The mechanical interlocking at Maplewood was disconnected and the field control apparatus was housed in the first floor of the existing mechanical tower. The "field unit" is on the pedestal to the right.





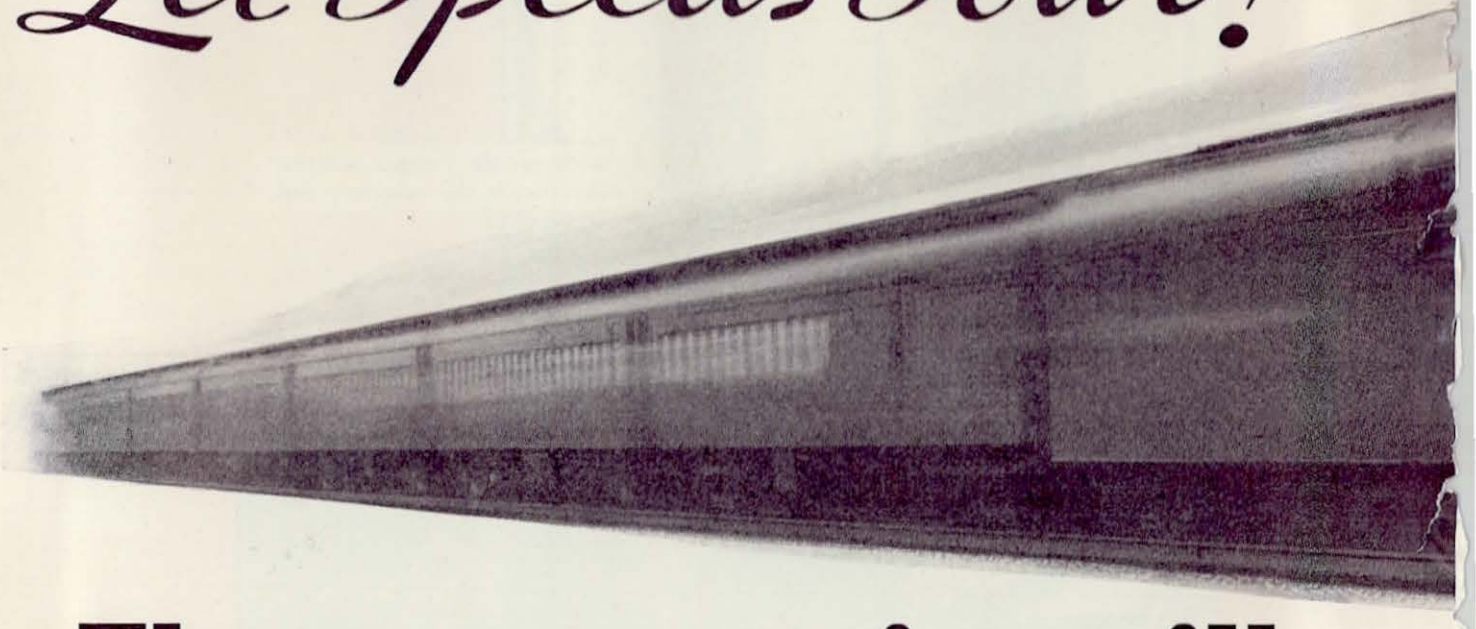
At Amqui the "control machine" stands beside the operator's desk.

Maplewood, Tenn. is the fourth G-R-S Remote Control installation on the L. & N. R.R. in five years. These successful installations are giving adequate assurance of the economic benefits derived from such a system.

GRS

A-1339

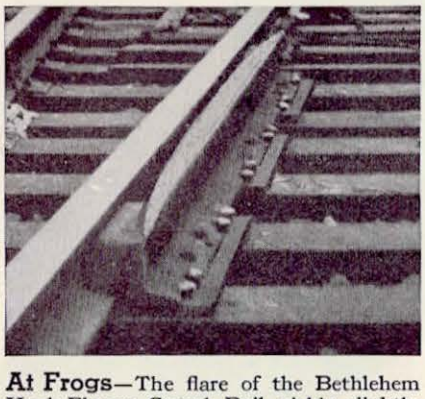
Let Speeds Soar!



These accessories will hold maintenance down

THESE Bethlehem Track Accessories all have features of design and construction that fit them for the key positions in the kind of track called for by rail traffic today. In strength they have been brought up to new high levels. At the same time resilience has been provided to take the sharp edge from wheel impacts—sparing both track and wheels. They are made adjustable where this will make for easier tuning up of track.

These are in every respect the accessories to use in bringing track up to the standards of smoothness needed for the fleet streamline train. At the same time they have the rugged stamina to bear up under the hammering wheels of the fast-rolling freight trains that have increased their speeds by a greater percentage than their more spectacular passenger-carrying companions.



At Frogs—The flare of the Bethlehem Hook-Flange Guard Rail yields slightly when struck by a fast-rolling wheel, guiding the opposite wheel smoothly past frog points—sparing both wheel flanges and frog points by absorbing the shock.

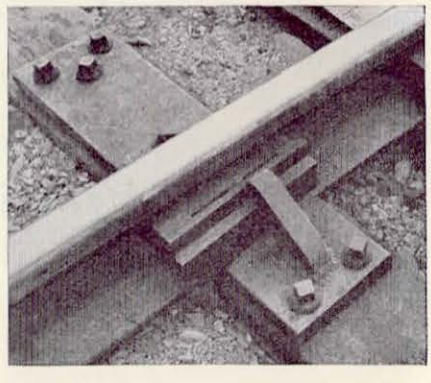
It is made of rolled steel, giving it both high strength and great resilience which cushions the impacts, saving wear and tear on both wheels and track equipment.

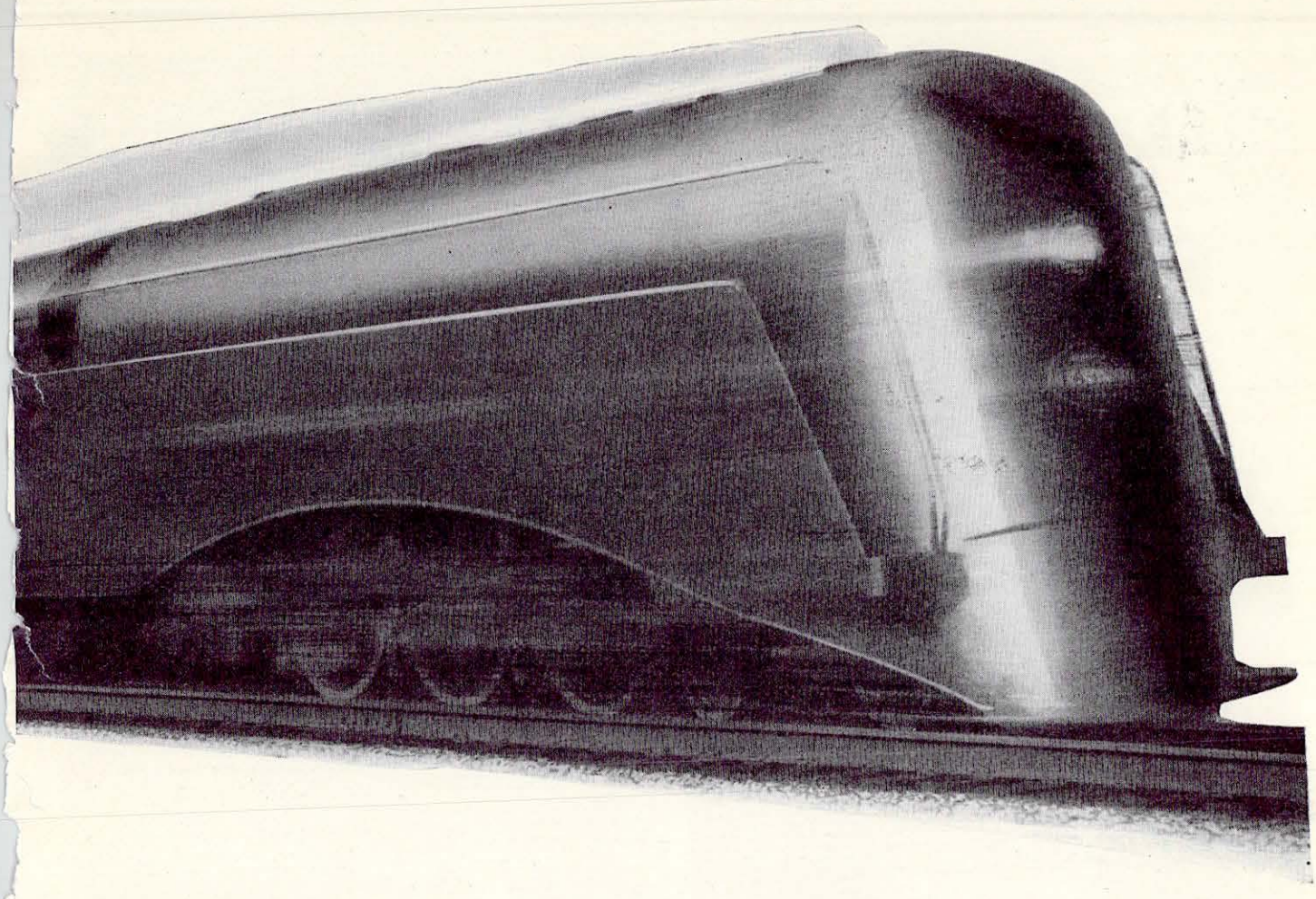
The Bethlehem Hook-Flange Guard Rail contributes materially to safe operation. It is the safe guard rail for high-speed main line track.

At Turnouts—The Bethlehem Spring Rail Brace has two qualities that set it apart from the usual type of rail brace. It is resilient, and easily adjustable.

This brace consists of two parts, a combined rolled-steel switch plate and brace, and a slotted wedge with spring incorporated that gives slightly under impact.

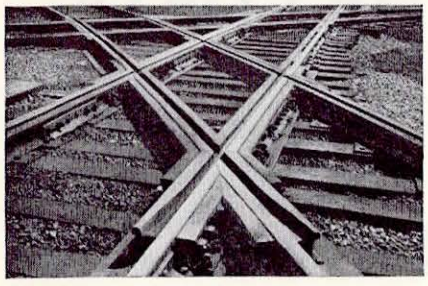
The spring permits full cushioning of wheel shocks with instant recovery, thus markedly lowering maintenance at switches. The brace securely anchors the rail. A spike maul or hammer is the only tool needed to install or adjust this brace assembly. A pawl and slot arrangement keeps the wedge in place and permits of adjustments in 1/16-in. steps.





At Crossings—Fast traffic severely batters crossings. Bethlehem crossings of heat-treated rolled steel hold maintenance down in spite of intensified wear and tear.

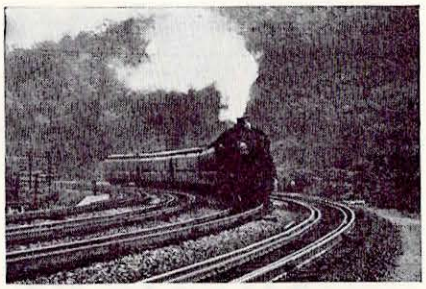
These crossings combine resilience with great strength and hardness. They have



extremely high wear-and impact-resistance, and the resilience softens the blows of the wheels. This nearly invincible combination of properties in Bethlehem heat-treated, carbon-steel crossings sharply reduces maintenance where traffic is heavy.

At Curves—Bethlehem Gage Rods keep track in alignment, true as laid, thus reducing wear on wheel flanges and rail heads at curves, turnouts, switch toes and joints.

At the same time, these rods equalize the thrust on rails at curves by transfer-



ring part of the strain to the inside rail, thus relieving outer-rail fastenings of some of the burden.

Bethlehem Gage Rods are one-piece forgings hooked at one end and threaded at the other to receive a standard unit lock nut which holds a rail clip in place. Insulated clips are furnished where track circuits demand them.

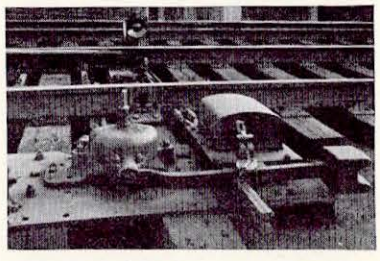
And for a reduction in tie plate stocks—Bethlehem Twin Frog Plates were developed to eliminate the need for carrying large stocks of special plates for frogs.

They fit any angle of the frog and any size frog. They have large bearing surface on the tie, effectively preventing wear. Each plate is fitted with a heavy, forged-steel hook that holds the frog securely. Each plate is punched to receive four spikes. These Frog Plates come in standard 23-, 27-, and 31-in. sizes.

To Raise Safety Standards Still Another Notch—

The Bethlehem Positive Signal Stand offers the chance to raise safety standards to a new high level. It gives a positive continuous distant-signal report on conditions right at switch points—warning of any dangerous conditions, even when of such a nature that the target indicates clear.

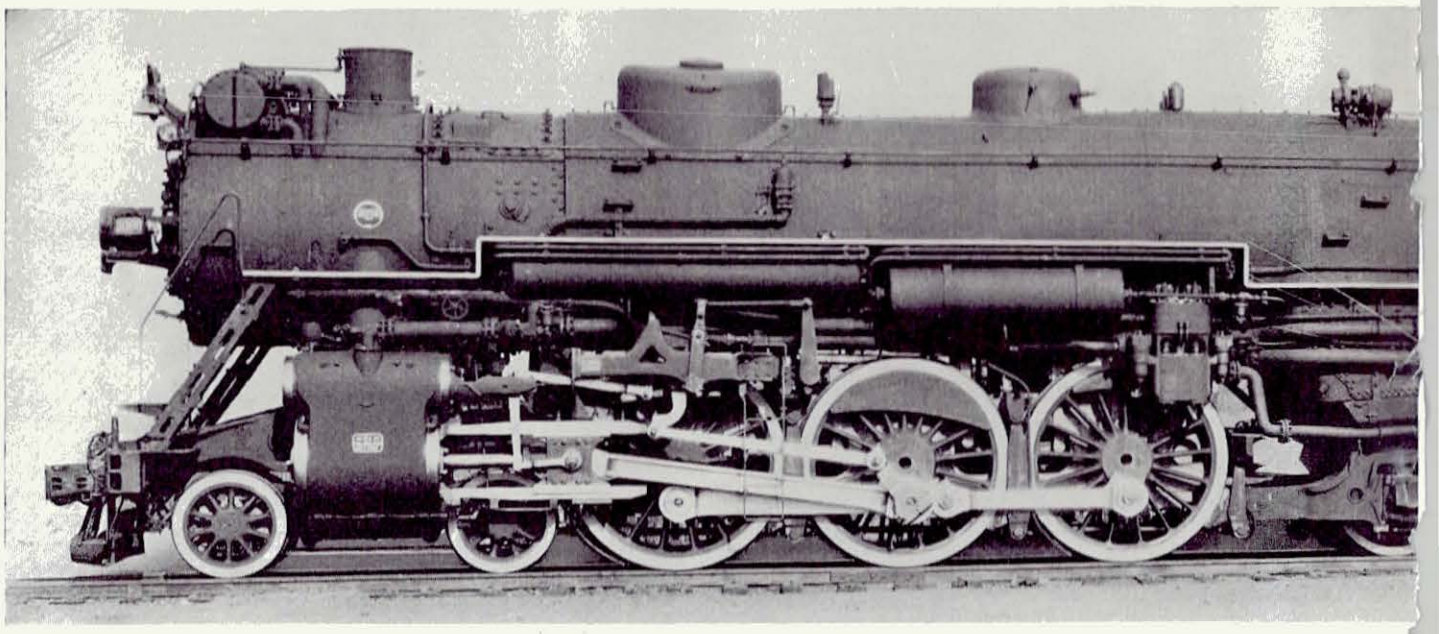
This safety device, besides operating a distant signal, functions as a switch stand and throws a derail on a



turnout. It includes a two-rod facing-point lock and detector bar protection for the switch-points. The assembly is conveniently compact, easy to install, simple to adjust, and readily accessible.

BETHLEHEM STEEL COMPANY

BETHLEHEM STEEL

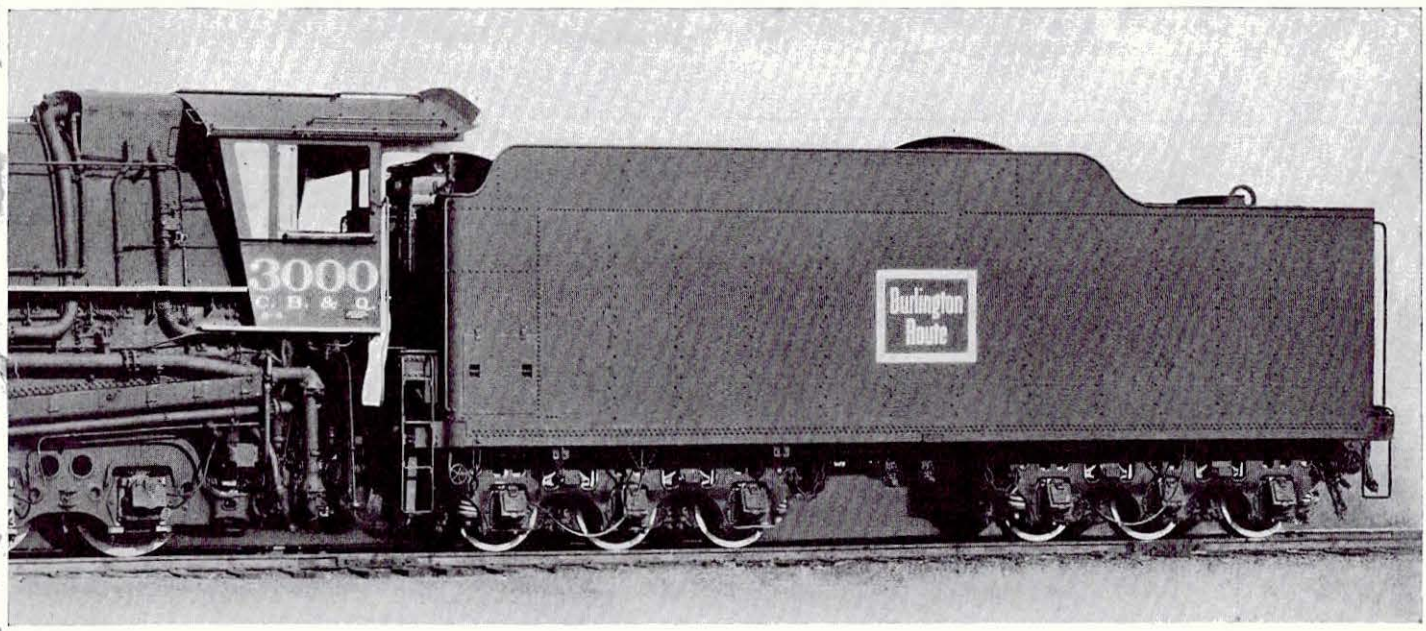


One of twelve Class S-4 passenger locomotives built by The Baldwin Locomotive Works for the Chicago, Burlington & Quincy Railroad in 1930

HIGH MILEAGE *and* LOW REPAIR COSTS *spell economy on the* BURLINGTON

It takes Modern Locomotives

THE BALDWIN



Twelve of these 4-6-4 type locomotives were placed in passenger service during the latter part of 1930.

Before shopping for general repairs they had made exceptionally high mileage ranging from 403,000 to 488,000 miles per locomotive.

Over a period of more than 5 years, or from November 1, 1930 to January 1, 1936, these twelve locomotives made a total of about 8,488,000 miles.

During this period the total amount expended for classified and running repairs was about $838,000, an average of only 9.8727 cents per mile.

to make money these days!

LOCOMOTIVE WORKS

PHILADELPHIA

READY—as Amer

SAFETY FIRST—
friendliness too!

DID YOU KNOW

—that the railroads haul a ton of freight a mile with a glass of water and less than a handful of fuel, and at rates averaging less than a cent?

—that the speed of freight trains has been stepped up 43% in recent years?

—that by increasing the efficiency of combustion the railroads have cut fuel costs a half billion dollars in the past ten years?

—that 44% of every dollar the railroads take in goes for railroad payrolls?

—that the railroads maintain their own "highways"—a quarter of a million miles of "line"?

—that many railroads will carry your automobile to vacation spots for the price of a third ticket?

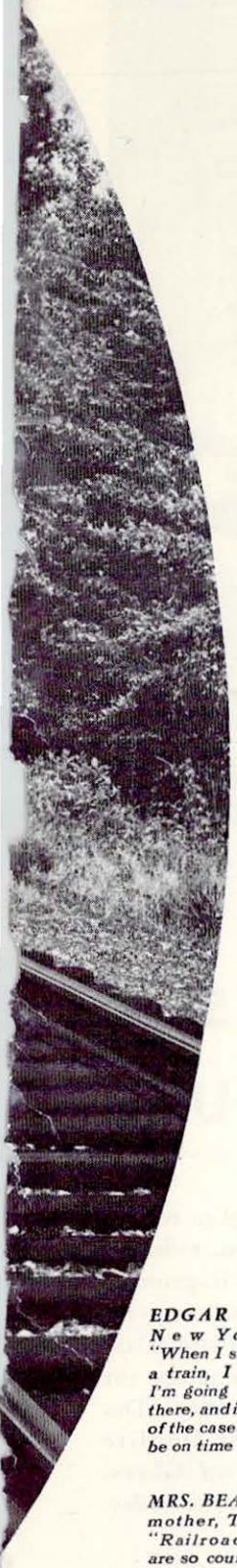
—that railroad fares throughout the United States have been reduced as much as 44%, and that Pullman fares are one-third less, with no surcharge?

—that you are far safer on a railroad train than you are in your own home?

PIONEERING STILL GOES ON!

If all the research activities carried on by the American railroads were concentrated in one huge laboratory it would require an institution housing thousands of men and providing millions of square feet of floor space. Six railroads, two universities and ten supply companies alone, for example, maintain a permanent research personnel of about 1,000 people, engaged in such varied projects as Equipment Design, Metal Alloys, General Equipment Efficiency, Design and Performance of Signal Apparatus, Production Methods, Wood Decay, Metal Corrosion, Water Softening. Out of this pioneering endeavor come such devices as this track recorder, used to detect and chart track irregularities. In a car traveling 50 miles an hour, it records such useful information as: low joints, variations in gage, car body inclination, car body bounce — providing a constant check on safety and pointing the way to greater comfort.

ica goes forward!



IT IS certainly no news that America has been passing through a depression.

The railroads, like every other business in the land, have had their problems, and plenty of them.

And like every other enterprising American business, the railroads have faced those problems with honesty and patience, with resourcefulness, *most of all with determination to go ahead.*

A vast range and variety of betterments in railroad practice and equipment is the result — such betterments as air-conditioning, for example, which makes a railroad passenger car today the cleanest, quietest, most comfortable way to travel.

Conspicuous also is the notable step-up in passenger schedules, to a point where many limited trains now *average* mile-a-minute speed. And freight transport also has been speeded up — an average of 43%.

But the real story of railroad enterprise is scarcely told by these figures, for it is a story of *speed with safety* unmatched by any other transportation in the world!

In its details it is, perhaps, an undramatic story — of light rails replaced by heavier ones — of roadbeds improved — of brakes and couplings bettered — of locomotives increased in power — of courageous investment matched by constant thrift in order that service might be maintained and even improved in the face of reduced revenues.

The big fact, however, stands clear: the American railroads today are *ready* as America goes ahead — ready to provide that indispensable reliability combined with adequate means and men to move tremendous tonnage, which a recovering nation demands.

EDGAR L. VAIL, executive, New York: "When I step on a train, I know I'm going to get there, and in 99% of the cases I will be on time to the minute."

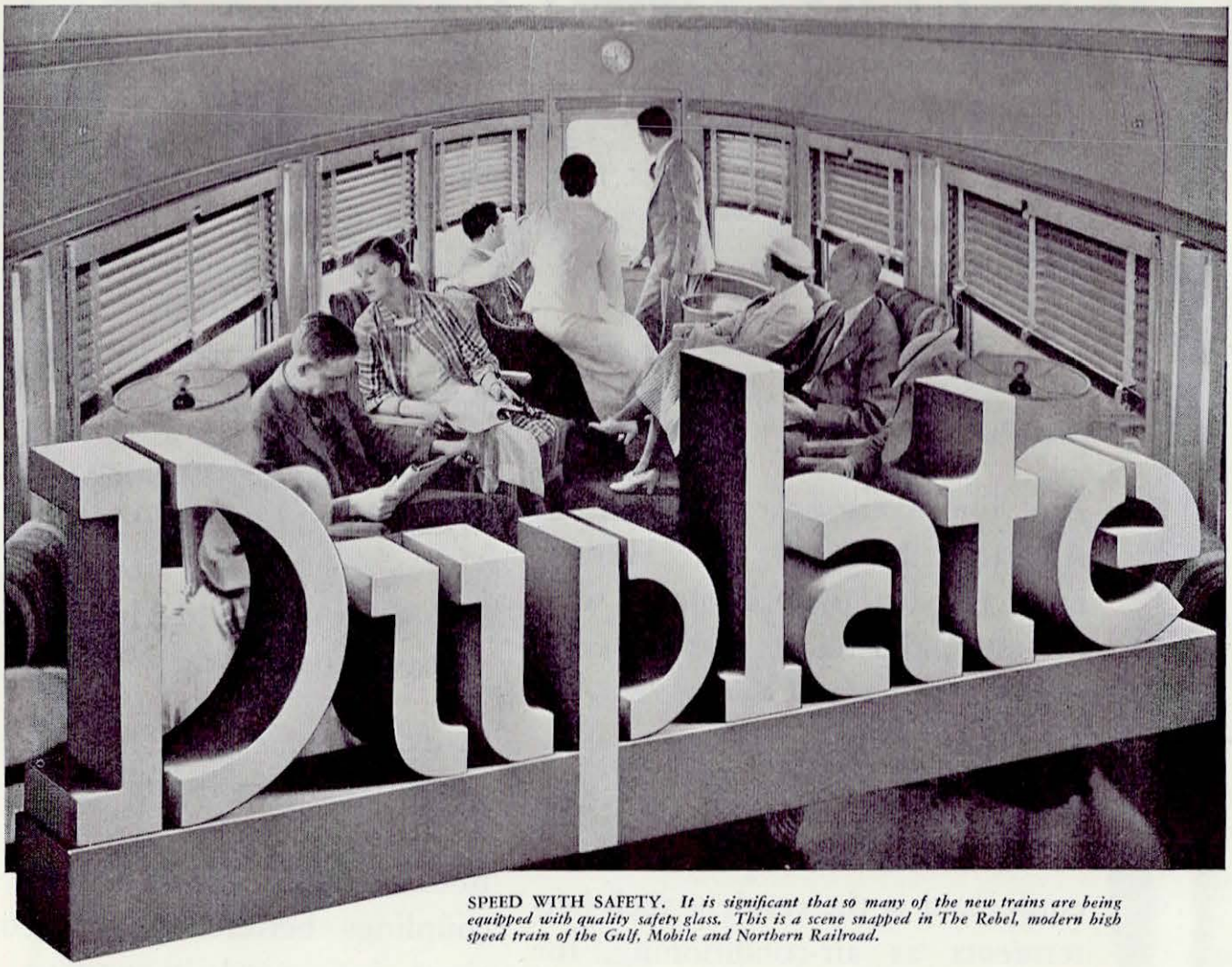
EARL I. CARMODY, salesman, New York: "I've traveled a bit in the last five years, so I really had a chance to appreciate the progress railroads have made when I recently took a long trip. There's no comparison between train travel today and train travel five years ago."

MRS. BEATRICE MITCHELL, mother, Tulsa: "Railroad men are so courteous and thoughtful that travel with children is no trouble at all these days."

MME. ERNESTINE SCHUMANN HEINK, opera singer: "The only reason I am able to travel so often and so extensively is that the railroads are so comfortable. With room to move about at will you feel completely relaxed at the end of the journey."

ASSOCIATION OF AMERICAN RAILROADS

HEADQUARTERS: Transportation Building, Washington, D. C.



SPEED WITH SAFETY. *It is significant that so many of the new trains are being equipped with quality safety glass. This is a scene snapped in The Rebel, modern high speed train of the Gulf, Mobile and Northern Railroad.*

THE SAFETY GLASS THAT REFLECTS FIVE DECADES OF GLASS MANUFACTURE

DUPLATE Safety Glass is made by the Pittsburgh Plate Glass Company. For fifty-three years this Company has been producing glass products. And these products have won an international reputation for high quality and satisfactory service.

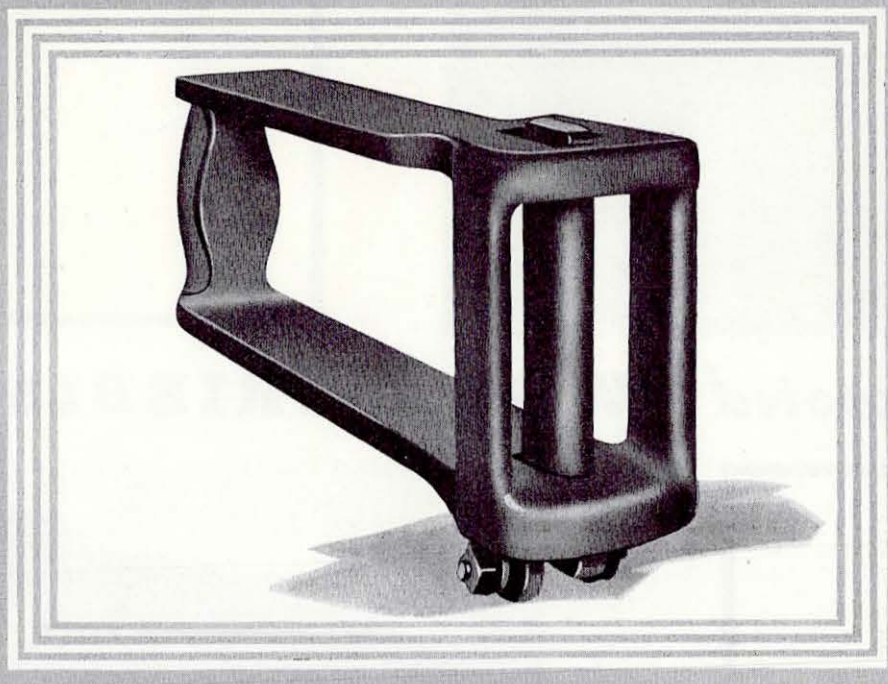
All the things about glass making methods and materials which we have learned in these five decades of experience and research in field, factory and laboratory, are reflected in the quality of Duplate Safety Glass. That is why you can use Duplate with perfect confidence.

Duplate, besides affording your passengers additional protection against glass injuries, provides another advantage of importance. This is the reduction of eye-fatigue of passengers who enjoy the scenery from your windows. Duplate is specially compounded to reduce the intensity of brilliant, reflected sunlight. By doing so, it protects passengers' eyes against excessive glare. The Pittsburgh Plate Glass Company welcomes requests for complete information about Duplate Safety Glass or Duolite Safety Pennvernon Glass. We invite you to write today.

Duplate Safety

A PRODUCT OF

Paint { PITTSBURGH PLATE GLASS COMPANY } Glass



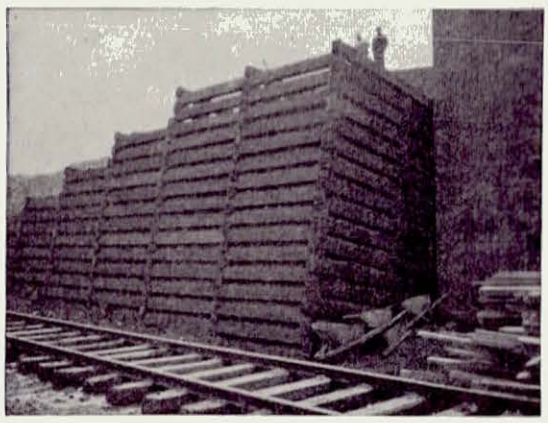
JANNEY VERTICAL KEY YOKE

A coupler yoke made of cast steel for replacing wrought riveted coupler yokes.

More than sixty railroads and private car lines have replaced thousands of wrought riveted yokes with Janney vertical key yokes, eliminating the heavy expense of maintaining riveted yokes.

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS



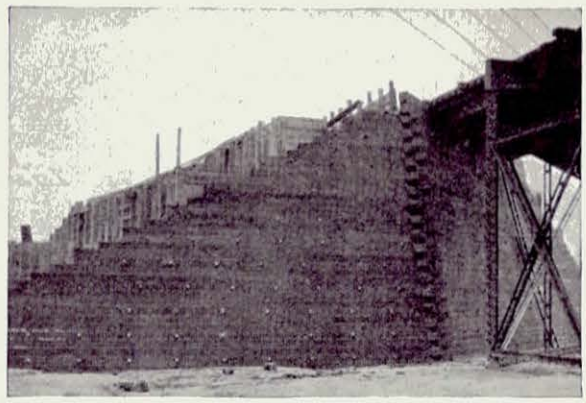
creosoted WOOD CRIBBING

DEPENDABLE

PERMANENT

LOWER FIRST COST

NO MAINTENANCE



RETAINING WALLS

Cribbing and Retaining Walls, built of Creosoted Timbers, offer a type of construction that is low in initial cost, with no maintenance expense over the material life of the structure. Service Records show that Creosoted Wood in place gives long and satisfactory service life, and to the time when changed conditions require extensions or alterations, in which event Creosoted Wood may be salvaged for use again. The yearly increase in the use of "Wood Preserving" Creosoted Timbers for Cribbing and Retaining Walls is indicative of the Dependable service which they provide.

THE WOOD PRESERVING CORPORATION

KOPPERS BUILDING . . . PITTSBURGH, PENNA.

SALES OFFICES

Baltimore, Md.
Boston, Mass.
Charleston, S. C.
Chicago, Ill.
Denver, Colorado
Houston, Texas
Kansas City, Mo.
Memphis, Tenn.

AYER & LORD DIVISION CHICAGO, ILL.
CENTURY DIVISION PITTSBURGH, PA.
CAROLINA WOOD PRESERVING CO. CHARLESTON, S. C.
NATIONAL LUMBER & CREOSOTING CO. TEXARKANA, ARK-TEX.

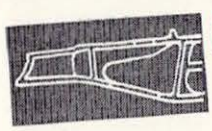
SALES OFFICES

Montgomery, Ala.
New York, N. Y.
Philadelphia, Pa.
Pittsburgh, Pa.
Reed City, Mich.
St. Louis, Mo.
Superior, Wis.
Texarkana, Ark.

Designs that have *proved* their superiority

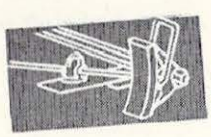
Consider the construction of the Self-Aligning (spring-plankless) Truck:

1 **A DOUBLE-TRUSS SIDE FRAME** design evolved through 15 years of fatigue test observation.



2 **BOLSTERS** of reinforced full box construction (full strength) throughout.

3 **SPRINGS** . . . A.A.R. Standard . . . "Coil-Elliptic" . . . or any desired combination of other types.



4 **BRAKE ARRANGEMENT** . . . to fit standard requirements . . . using any approved guard or support.

- Lightest weight possible.
- Fewest parts.
- Low maintenance costs.
- Sound design.

Self-Aligning Trucks are based on designs that have *proved* their superiority and low maintenance cost through millions of miles of service.

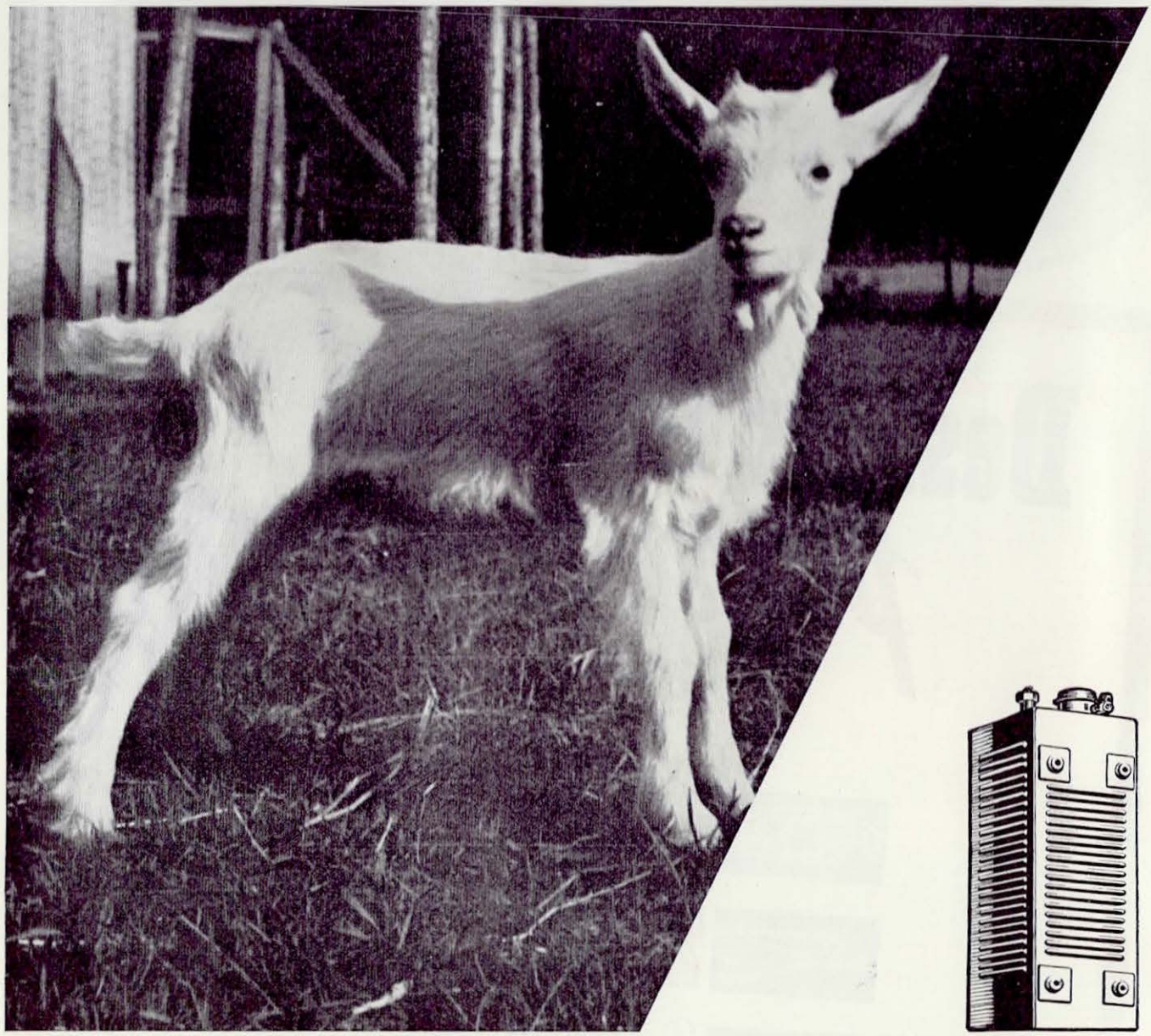
GOULD COUPLER COMPANY • *Works:* DEPEW, N. Y.
NEW YORK *Licensed Manufacturer of Self-Aligning Trucks* CHICAGO

SELF-ALIGNING TRUCKS

spring-plankless double-truss

UTILIZE DESIGNS OF PROVED DEPENDABILITY

WHOSE GOAT IS GOTTEN?



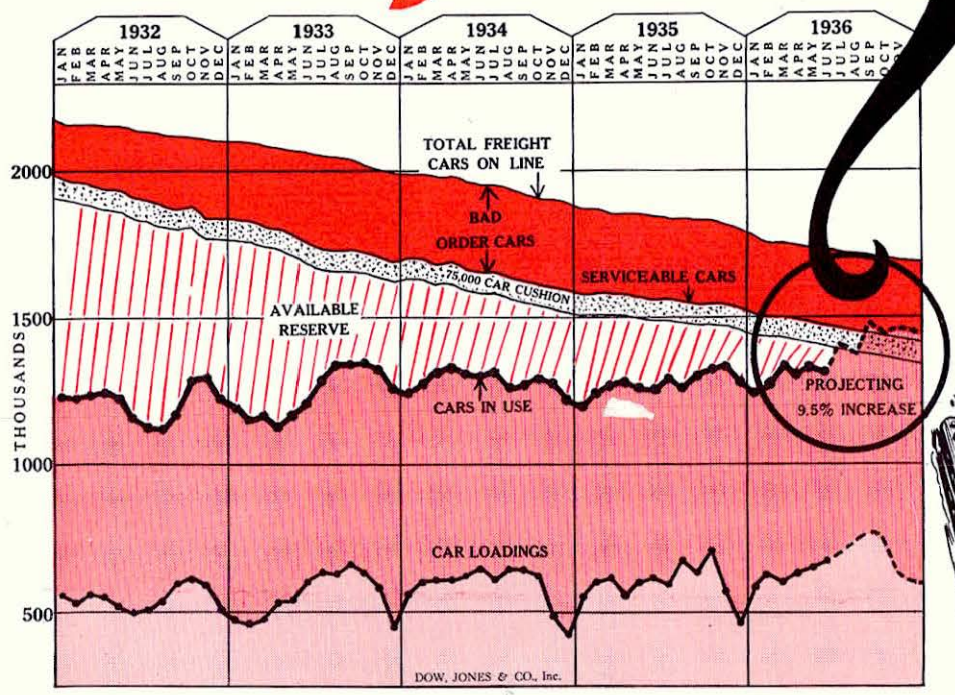
If a battery fails unexpectedly during a run, whose goat is gotten? The electrical department certainly isn't happy about it... but the "public relations department" gets the biggest blow. Any interruption in air-conditioning or car-lighting *undoes* much of the goodwill it costs millions of dollars to create.

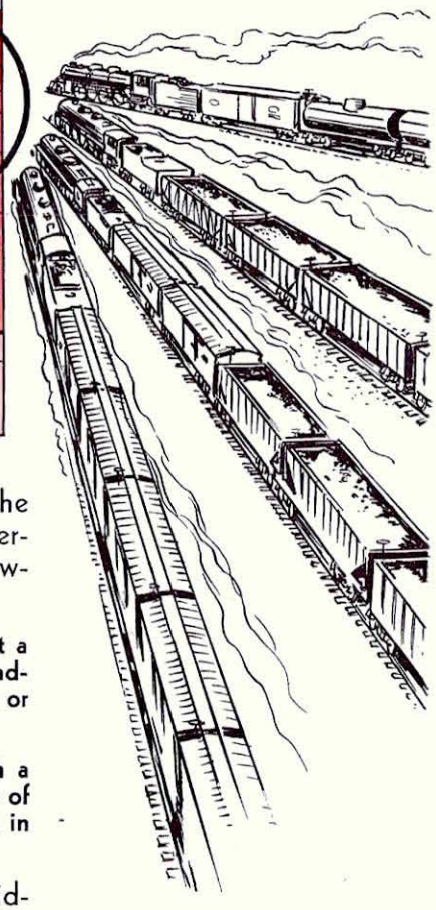
So installation of Edison Steel-Alkaline Batteries is a thrifty move. It supplies protection against unexpected failure. The Edison's performance is predictable from car shopping to car shopping. But, it shares this distinction with no other storage battery made in America. All others, regardless of name are acid type—only the Edison is alkaline. The Edison often outlives its guarantee 20% to 150%... and always costs less to maintain.

EDISON *STORAGE* BATTERY

DIVISION OF THOMAS A. EDISON, INC., WEST ORANGE, NEW JERSEY

Are We Headed for a Car Shortage ?





In summarizing their report of March 10, 1936 on the "Economic Aspects of the Freight Car Situation," Coverdale & Colpitts, Consulting Engineers, make the following statements.

"Based on 1929 efficiency of operation, it is probable that a car shortage will occur shortly after the average weekly carloadings exceed 750,000 unless freight car equipment is rebuilt or replaced.

"Average weekly carloadings in 1935 were 606,000 with a maximum of 734,000 in October. During the first six weeks of 1936 carloadings have averaged seven per cent higher than in the corresponding period last year."

In the two weeks ending July 11 and July 18, two midsummer weeks and the latest reports available, carloadings were 724,324 and 720,402 respectively.

The important peak fall traffic ahead unquestionably will tax to the utmost the facilities in many sections of the country.

American Railway Car Institute

19 Rector Street New York, N. Y.

. . . . do fireproof concrete trestles cost no more than ordinary construction?

Because

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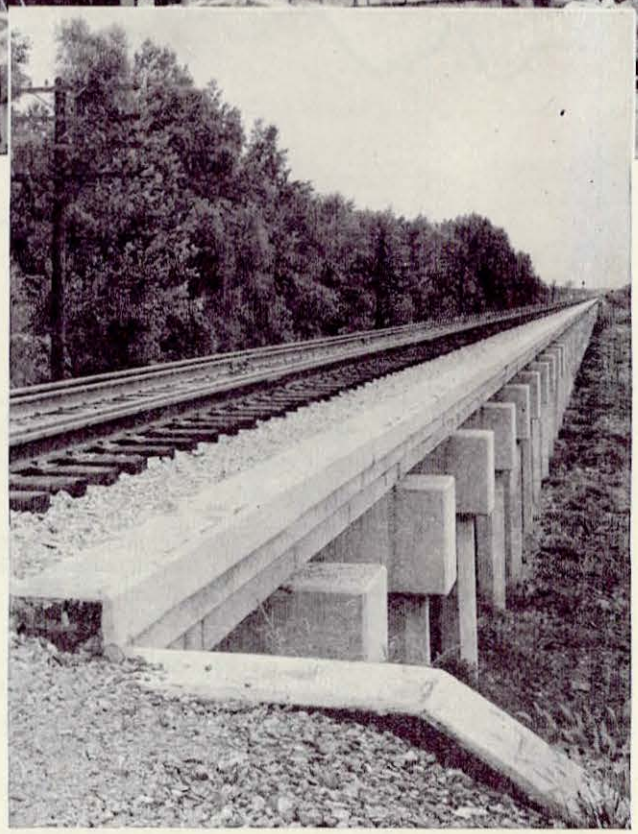

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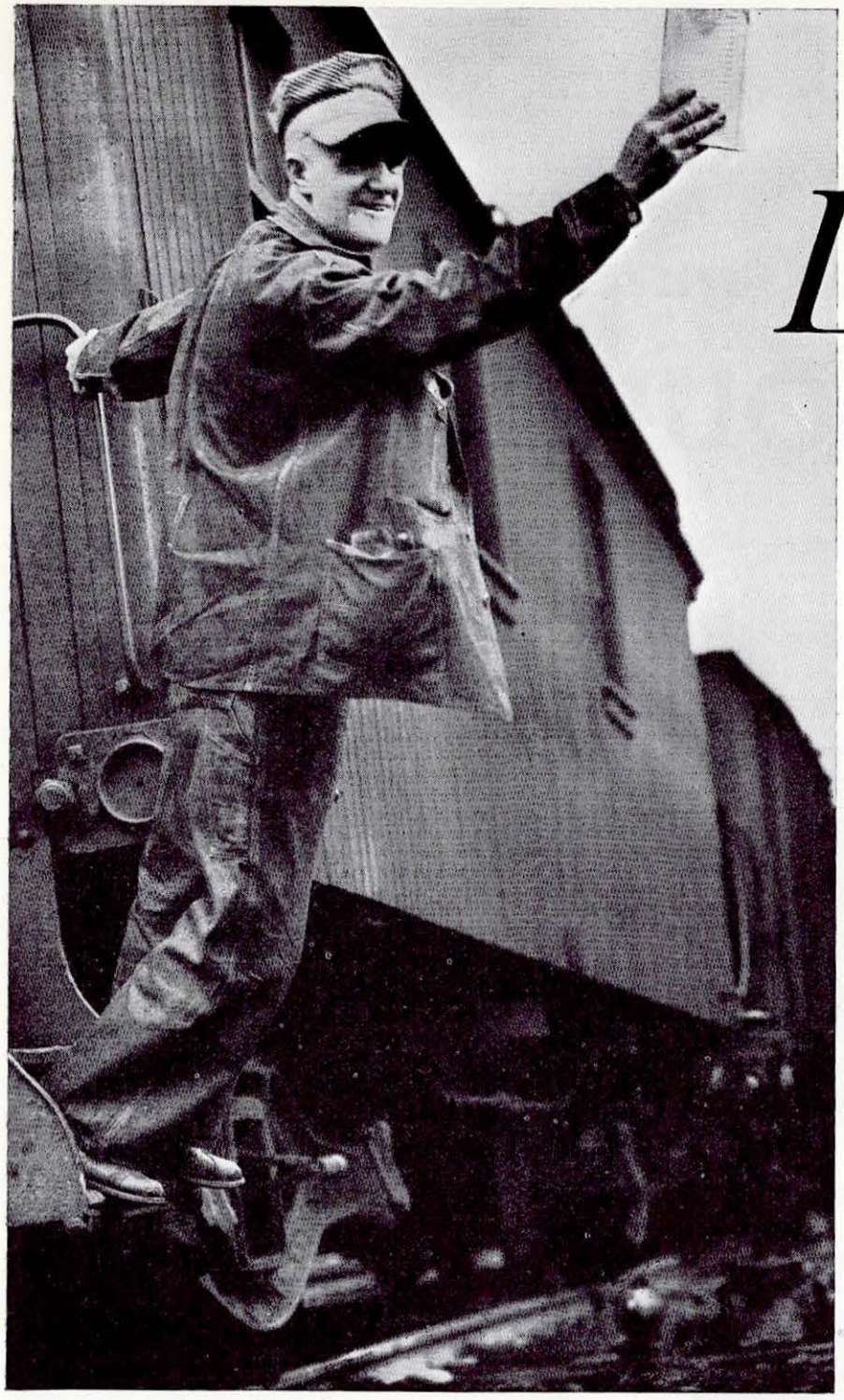

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UNITED STATES STEEL

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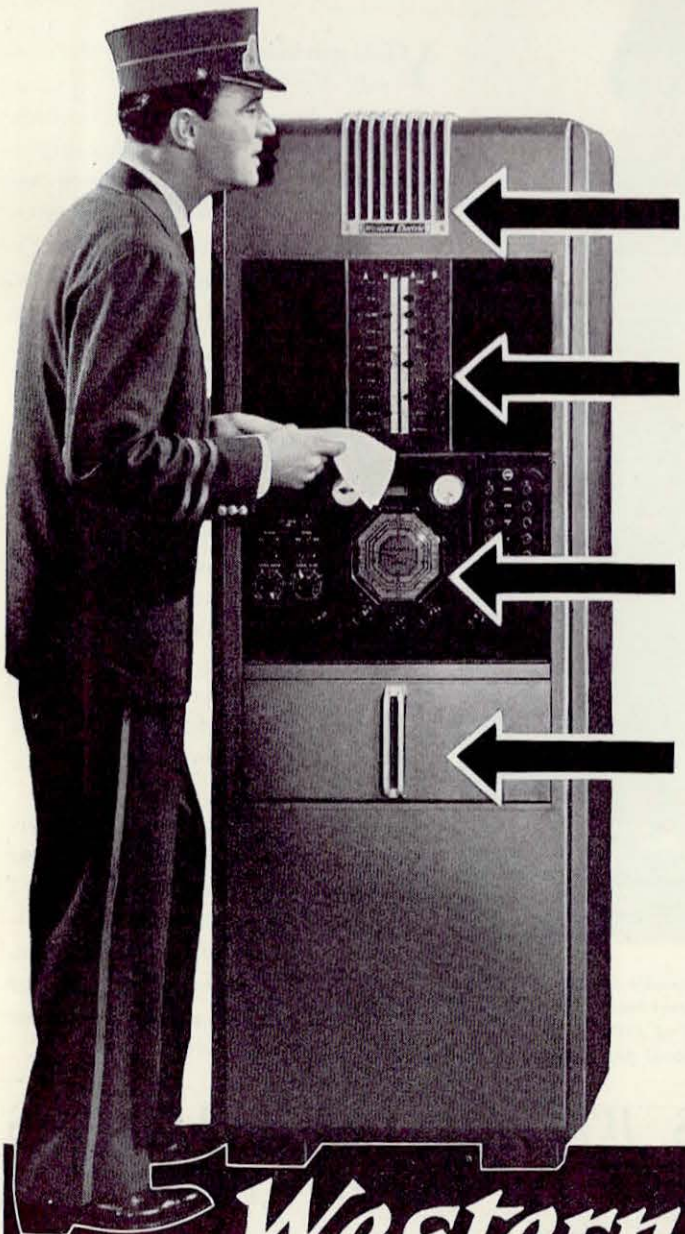

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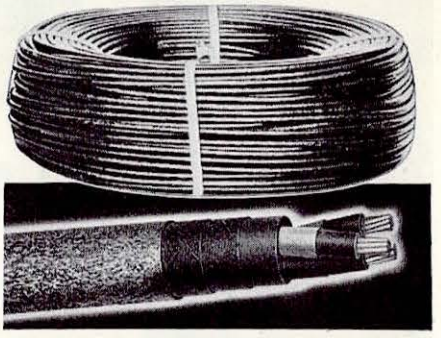

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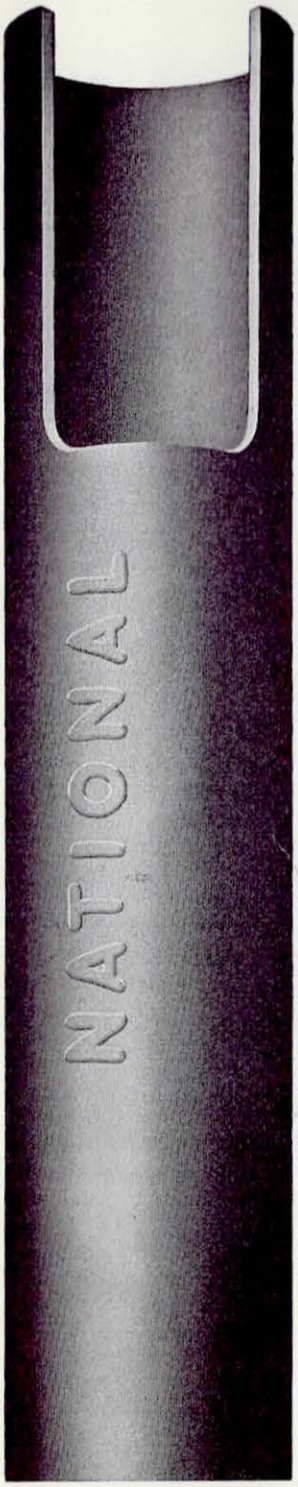

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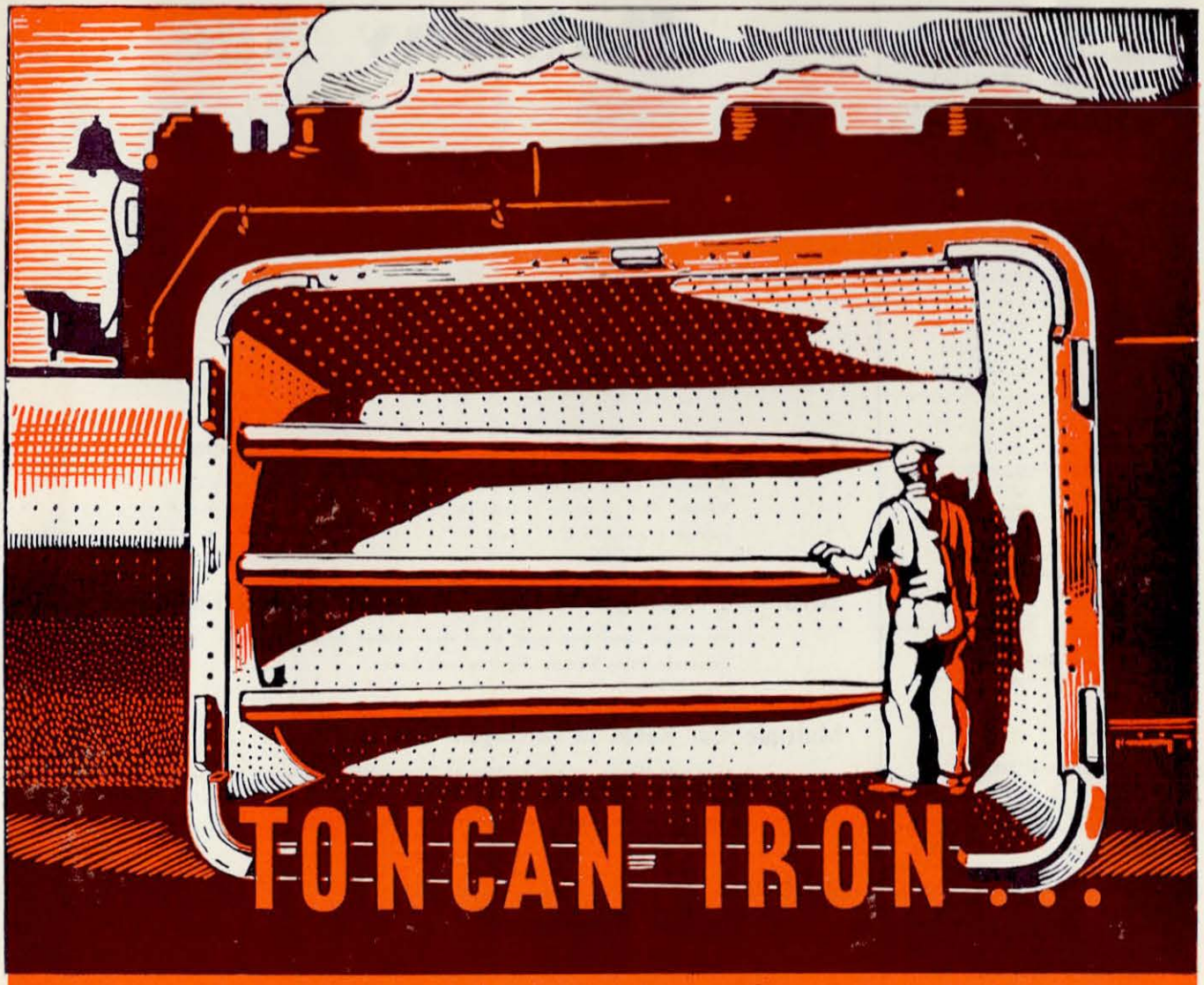

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RAILWAY AGE

Who Pays Huge Government Expenditures?

One of the most vital issues, if not the most vital, in the present national political campaign is that of economy versus extravagance in government. The *Railway Age* has never wavered in its opposition to huge government expenditures as a means of promoting recovery. It opposed them in editorials published as long ago as when an expenditure of $5,000,000,000 upon public works was being advocated while the Hoover administration was still in power. It opposed them both before and after the public works provisions of the National Industrial Recovery Act were passed. In its issue of July 15, 1933, this paper said:

> The *Railway Age* is frankly skeptical regarding the extent to which general business will be either temporarily stimulated or permanently benefited by the government's public works program, or by any policy of actual inflation which it may adopt. The decline of production, commerce, earnings and employment in private business caused the depression. The decline of activity and employment in private business was many times greater than any increase in activity and employment that will or can be caused by expenditures upon public works. The taxes for paying for public works must all be derived, directly and indirectly, from private business, and, therefore, only a general revival of private business will substantially relieve unemployment, restore prosperity and provide the means for paying for public works.
>
> Regardless of what the government may do in the administration of the industrial recovery and public works legislation, the business men of the country will have to find and adopt, in the conduct of their own businesses, the means of maintaining and stimulating the increase in industrial and commercial activity now occurring. The government can help or hinder, but government direction and action can never, until a complete policy of socialism has been adopted, serve as a substitute for private initiative and enterprise.

"Priming the Pump" and Recovery

Throughout the two years following the publication of this editorial, the government, especially by NRA, followed a policy of increasing costs of production in industry which hindered business from doing the things necessary to revive business. Meantime it was making huge expenditures to "prime the pump" and for relief that caused fears of uncontrolled inflation and also for other reasons hindered recovery. In July, 1933, when the editorial above quoted from was published, railroad freight loadings were 38 per cent less than they had averaged in the five years 1925-1929. In the subsequent two years they averaged 41 per cent less than in 1925-1929. The "increase in industrial and commercial activity now occurring" in July, 1933, and which had been occurring for some months previously, was arrested and was not resumed until about a year ago after NRA had been destroyed by a decision of the Supreme Court.

That the huge increase in government expenditures was one of the most important influences in arresting recovery from the summer of 1933 until the summer of 1935, and that it is still an adverse influence of great importance, is unquestionable. It has diverted to unproductive uses income and capital that otherwise would have been used by private enterprise in ways that would not only have increased employment much more than it has been increased, but that would have caused increases in production that would have increased the national wealth and income. By undermining confidence in the future value of the nation's currency and in the profitableness of new investments it has prevented the investment of a large part of the capital which, in spite of the amount absorbed by the flotation of government bonds, has remained available for private business. By hindering the reemployment of millions in private industry it has maintained the apparent necessity for continuance of huge expenditures for relief.

Who Pays the Bill?

One of the most appalling features of the resulting situation is that a large majority of the people do not

have the slightest realization of who is bearing, and, in the long run, must bear the burden imposed by the huge expenditures made and still being made. There is but one source from which the means of defraying these expenditures ultimately can come. This is taxes. Most persons have no idea of how much taxes they pay. Many hardly realize that they pay any at all. If all those who are working for their incomes realized what a burden of taxes is being directly and indirectly imposed upon them there would be an overwhelming popular revolt against present government expenditures, national, state and local.

It is unfortunately not practicable to determine how much taxes are directly and indirectly paid by any individual person or family. Some are direct, and the person paying them knows he pays them. Most are indirect, and the person who pays them does not know it. Every man who owns his own home knows he pays taxes on it. Every man who rents a house or apartment has relatively about as much taxes included in his rental as are paid by a man who owns a home of equal value, but the person who pays rent usually has no idea how much taxes are included in it. Every housewife who pays a sales tax on dry goods or groceries knows it. But how many men realize how large relatively are the equivalent of sales taxes that they pay every time they buy a glass of beer, a gallon of gasoline or a package of cigarettes? In view of the way in which all taxes enter into business expenses and, therefore, into all rentals and prices, it is a reasonable assumption that *every* person receiving an earned income directly and indirectly pays about as much taxes in proportion to his income as every person.

Railway Employees and Taxes

The total national income in 1936 will be approximately $55,000,000,000. The total cost of government —federal, state and local—will be approximately $16,500,000,000. Therefore, the total cost of government will be approximately 30 per cent of the national income. On the assumption that, directly and indirectly, each person with an earned income pays about as much taxes in proportion to his income as every other person does in proportion to his income, the present annual total cost of government in this country is $300 for a person with an income of $1,000; $1,500 for a person with an income of $5,000; $3,000 for a person with an income of $10,000, and so on. Apply this formula to the incomes of railway employees. Their average earnings are now about $1,700 annually. On this basis the average employee is directly and indirectly bearing a share in the total cost of government this year of over $500.

Now, it is obvious that taxes cannot be abolished. Government must be supported, and taxation is the only means by which it can be supported. But government expenditures and the taxes required to meet them can be either increased or reduced. The expenditures of the federal government increased from less than $3,500,000,000 in the year ended on June 30, 1930, to about $8,880,000,000 in the year ended on June 30, 1936. This increase included expenditures for relief and the soldiers' bonus; but there was also an increase during these years in the ordinary expenditures of the federal government when most businesses and families had drastically to reduce their expenditures. And, whatever the increase in expenditures was made for, it remains a fact that sooner or later there must be a sufficient increase in taxes to offset it, and that directly and indirectly everybody earning an income is going to pay a share of the increased taxes proportionate to his income. The increase in federal government expenditures alone in 1936 over 1930 is almost equivalent to 10 per cent of the total national income in 1936. For each railway employee, on the average—assuming he bears costs of government in proportion to his income—it is roughly $167, or about as much as he gained annually—or thought he was gaining—by the restoration of the 10 per cent deduction from his wages.

How About the Employed?

Much is being said about the unemployed and what should be done for them. Obviously the needy should be afforded reasonable relief and every sound and practicable policy should be adopted by government and business that will help to cause the unemployed to be re-employed. But if there are at present, as is indicated by an average of various estimates, approximately 11,000,000 unemployed, then there are also about 40,000,000 who are employed and working for their incomes. It would seem that it is about time that more should be said about the 40,000,000 who are employed and by their work and incomes are supporting not only themselves and their families, but also those on relief. And it cannot be too strongly emphasized or graphically illustrated that each of these 40,000,000, however small or large his income, is paying or is going to pay, directly and indirectly, in proportion to his income for all the government expenditures that have been, are being or are going to be made.

If total government expenditures should continue to be $16,500,000,000 a year, and the average railway employee should continue to receive his present income, then directly and indirectly he would have to pay in taxes approximately $500 a year toward defraying these expenditures. If total government expenditures were reduced, say 25 per cent, the reduction would save the average railway employee $125 a year. If they were reduced one-third—or as much as they have been increased since 1930 by the increase in the expenditures of the federal government alone—it would save him about $167 a year. And there can be no serious question by any thoughtful person that they could be reduced this much merely by the elimination of unnecessary and extravagant spending. Railway employees, like most other working men, are prone to believe that when they get an advance in their wages it is all net gain. It is obviously no net gain at all to them if government follows policies which directly and indi-

rectly increase their taxes more than their advances in wages amount to.

There are no facts that it is more vitally necessary to make clear to persons with small incomes than the facts about government expenditures and taxes and who actually pays them.

Bargain Rates for Equipment Money

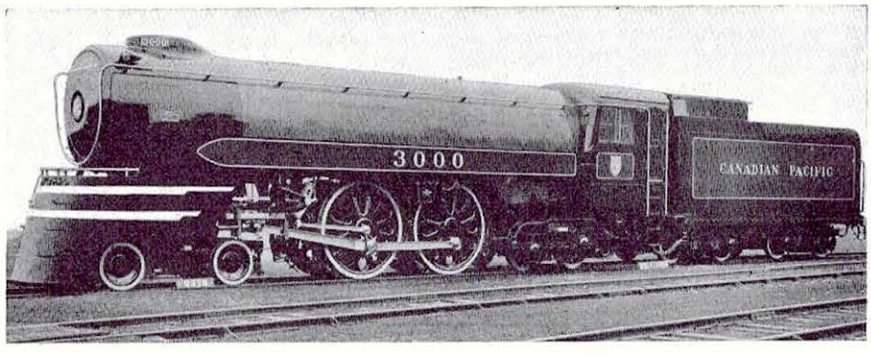
The Chicago Great Western, which is being operated by trustees, nevertheless enjoys sufficient credit to enable it to borrow money needed to buy equipment at an interest cost of 4 per cent which, before the depression, would have represented a bargain even for prosperous railways. To be sure, the lender is the Reconstruction Finance Corporation, but money available to the Great Western from that source is quite likely available to other carriers in financial difficulties also, provided their earnings are substantially in excess of operating expenses and they can assure the R.F.C. of their ability to earn interest and meet maturities on these obligations. Railroads in sound financial condition, of course, have no need to resort to government financing; they can secure all the money they want for equipment in the private money market at rates of interest which constitute an unprecedented bargain—2 per cent or less.

Thus it happens at a time when railroad equipment renewal has suffered its longest and deepest dearth—and consequently the pent-up demand for new equipment is as great as, or greater than, that of any time in the history of the railroads—the market for financing such expenditures is also the most favorable ever known. The coincidence of these factors alone would be sufficient reason for expecting a continuation of the increase in equipment buying already under way. But, added to these conditions, are two others pointing strongly in the same direction: Continued upturn in the volume of railroad traffic and the introduction of radically new designs, which latter have proved their efficacy in attracting traffic or reducing expenses or both.

One may well wonder, with the other factors leading to heavier equipment orders becoming so strong, just how much longer the bargain rates in the money markets will continue. Normally, as buying increases, the interest rate also might be expected to rise. In that event those companies which are doing their buying now, rather than later on, stand to save large sums in interest payments.

Indexes to Volume 100

The indexes to the latest volume of the *Railway Age*, January to June, 1936, are now ready for distribution and copies may be had by those subscribers desiring them. Requests should be addressed to the Circulation Department, *Railway Age*, 30 Church Street, New York. Subscribers who have in previous years made application for the index need not apply again; they will continue to receive it as long as they continue to subscribe.

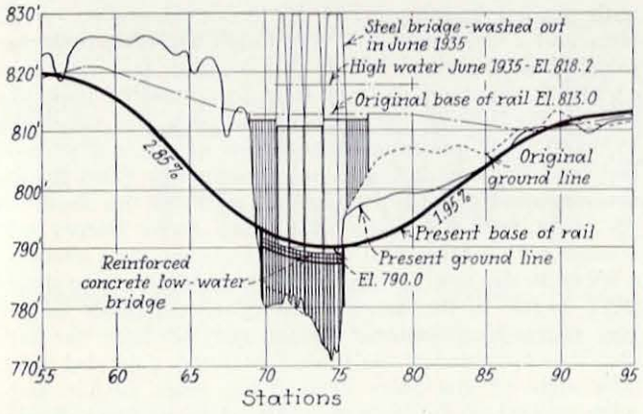


First Canadian Pacific "Jubilee" Locomotive, Built by the Montreal Locomotive Works, Ltd.

of the slabs have an unusual detail in the form of a slip-joint dowel connection to the fixed ends of the adjacent slabs. Five smooth-rod dowels 1-in. in diameter projecting horizontally from the fixed end, extend into galvanized iron pipes cast into the free end. Thus, the free end of the slab is held in alinement without interfering with its longitudinal movement.

The track on the bridge consists of 90-lb. rail secured to the tops of the slabs by means of Universal anchor tie plates. These plates, as the name indicates, anchor the rail against movement longitudinally as well as laterally, fit any rail from 90-lb. to 131-lb., and provide for adjustment of both gage and line. The anchor tie plate bears on a masonry plate held in place by anchor bolts through the masonry plate and the four corners of the anchor plate. The rail is firmly fastened by means of two eccentric cams and bolts attached to the plate.

The masonry plates, 9 in. by ¾ in. by 22¼ in., and spaced 14⅝ in. center to center, provide sufficient bearing on the slabs for the distribution of the wheel loads transmitted by the rail through the anchor tie plates. Angles, 5 in. by 3½ in. by ½ in., bolted to the masonry plates with anchor bolts fastened in the concrete, serve as inside guard rails. The masonry plates were seated



Profile of the New and Old River Crossings

on two-ply 14-oz. duck dipped in red lead paste. The anchor bolts had to be accurately set in the concrete and to accomplish this they were hung on templates fastened to the top of the forms when the slabs were poured. The slabs were cast against the templates and no difficulty was experienced in finishing off the bearing for setting the plates to precise grade after the templates were removed.

Concrete Work

A total of 2,350 cu. yd. of concrete was mixed and placed on the entire job in accordance with 1935 A.R.E.A. specifications for 3,000-lb. concrete, except that a minimum cement content of six sacks per cubic yard was specified. Actually six sacks per cu. yd. were used for the piers and 6.4 sacks per cu. yd. for slabs. An accurate control of the mix resulted in a very uniform strength well above the design strength of 3,000 lb. per sq. in. at 28 days. The gravel and sand used for aggregates were both well graded and had a low void content.

To prevent the track on the steep grades from creeping toward the bridge Universal anchor tie plates were applied also to the track ties on the approaches, using screw spikes. The cut on the north bank was through a gravel bar and on the south bank through caliche and gravel, except for a distance of about 200 ft. at the south end of the bridge, where about 3 ft. of solid rock had to be excavated. It is expected that the cuts on both banks will have to be cleaned out after each major flood as some gravel will undoubtedly be deposited in them. This operation should be relatively simple as the river rises very rapidly and backwater in the cuts quickly prevents excessive scour. No great amount of delay or expense is anticipated on this account.

The plans for this structure were developed in the Houston office of the Missouri Pacific Lines under the direction of C. S. Kirkpatrick, chief engineer, and R. Owen, construction engineer, to whom we are indebted for the information presented here. The bridge was constructed by the Austin Bridge Company, Austin, Texas.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended July 18 totaled 720,402 cars, a decrease of 3,922 cars as compared with the week before, in which the highest loading for a week this year occurred, but an increase of 127,730 cars, or 21.6 per cent, as compared with the corresponding week of last year. All commodity classifications showed increases over last year's figures. Miscellaneous freight increased 47,895 cars and grain and grain products increased 25,171 cars, but merchandise, miscellaneous, live stock, ore, and coke showed decreases as compared with the preceding week. The summary, as compiled by the Car Service Division of the Association of American Railroads, follows:

Revenue Freight Car Loading
For Week Ended Saturday, July 18

Districts	1936	1935	1934
Eastern	148,591	129,198	132,634
Allegheny	147,020	113,322	117,358
Pocahontas	48,024	38,443	40,783
Southern	94,166	80,333	80,669
Northwestern	115,598	90,077	95,453
Central Western	110,883	92,755	98,954
Southwestern	56,120	48,544	50,189
Total Western Districts	282,601	231,376	244,596
Total All Roads	720,402	592,672	616,040
Commodities			
Grain and Grain Products	58,555	33,384	47,171
Live Stock	12,315	10,164	26,214
Coal	108,510	89,701	97,713
Coke	8,660	4,679	4,502
Forest Products	33,988	28,415	22,071
Ore	53,680	34,122	32,496
Merchandise L.C.L.	160,472	155,880	158,636
Miscellaneous	284,222	236,327	227,237
July 18	720,402	592,672	616,040
July 11	724,324	565,602	604,192
July 4	649,759	471,126	520,741
June 27	713,639	616,863	646,003
June 20	690,716	567,049	623,322
Cumulative Total, 29 Weeks	18,685,355	16,790,029	17,177,596

Car Loading in Canada

For the week ended July 18 Canada's car loading total was 45,496, says the report from the Dominion Bureau of Statistics. Last year the summation was 45,294 and in the preceding week it was 47,912.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
July 18, 1936	45,496	21,280
July 11, 1936	47,912	21,251
July 4, 1936	43,172	22,577
July 20, 1935	45,294	19,364
Cumulative Totals for Canada:		
July 18, 1936	1,262,406	676,482
July 20, 1935	1,244,782	635,544
July 21, 1934	1,224,901	660,555

rectly increase their taxes more than their advances in wages amount to.

There are no facts that it is more vitally necessary to make clear to persons with small incomes than the facts about government expenditures and taxes and who actually pays them.

Bargain Rates for Equipment Money

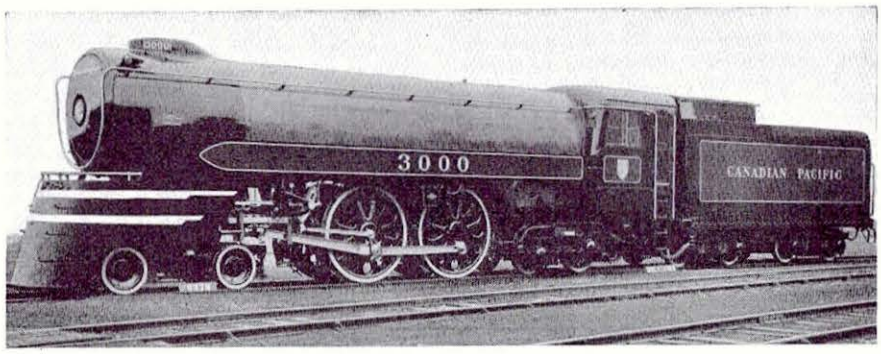
The Chicago Great Western, which is being operated by trustees, nevertheless enjoys sufficient credit to enable it to borrow money needed to buy equipment at an interest cost of 4 per cent which, before the depression, would have represented a bargain even for prosperous railways. To be sure, the lender is the Reconstruction Finance Corporation, but money available to the Great Western from that source is quite likely available to other carriers in financial difficulties also, provided their earnings are substantially in excess of operating expenses and they can assure the R.F.C. of their ability to earn interest and meet maturities on these obligations. Railroads in sound financial condition, of course, have no need to resort to government financing; they can secure all the money they want for equipment in the private money market at rates of interest which constitute an unprecedented bargain—2 per cent or less.

Thus it happens at a time when railroad equipment renewal has suffered its longest and deepest dearth—and consequently the pent-up demand for new equipment is as great as, or greater than, that of any time in the history of the railroads—the market for financing such expenditures is also the most favorable ever known. The coincidence of these factors alone would be sufficient reason for expecting a continuation of the increase in equipment buying already under way. But, added to these conditions, are two others pointing strongly in the same direction: Continued upturn in the volume of railroad traffic and the introduction of radically new designs, which latter have proved their efficacy in attracting traffic or reducing expenses or both.

One may well wonder, with the other factors leading to heavier equipment orders becoming so strong, just how much longer the bargain rates in the money markets will continue. Normally, as buying increases, the interest rate also might be expected to rise. In that event those companies which are doing their buying now, rather than later on, stand to save large sums in interest payments.

Indexes to Volume 100

The indexes to the latest volume of the *Railway Age*, January to June, 1936, are now ready for distribution and copies may be had by those subscribers desiring them. Requests should be addressed to the Circulation Department, *Railway Age*, 30 Church Street, New York. Subscribers who have in previous years made application for the index need not apply again; they will continue to receive it as long as they continue to subscribe.



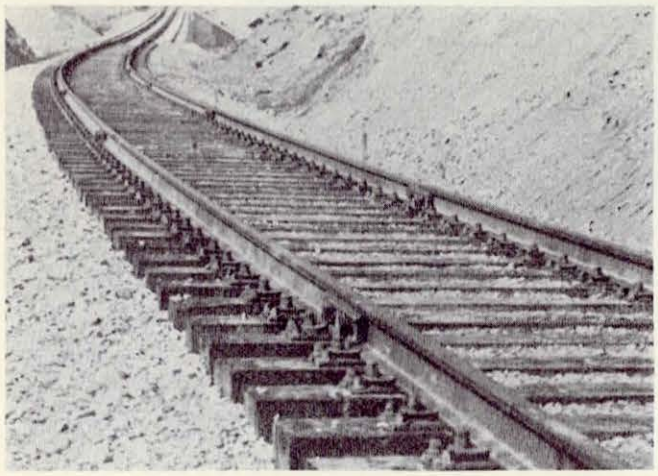
First Canadian Pacific "Jubilee" Locomotive, Built by the Montreal Locomotive Works, Ltd.

Looking North from the South Side of the River, Showing the Upstream End of the Piers

Build Low-Level Bridge to Solve High-Water Problem

Crossing of Nueces river at Uvalde, Texas, is designed to resist effect of submergence in swift current at extreme flood stages

A BRIDGE with its deck well below extreme high water level and designed to resist the forces to which it will be subjected when submerged in a swiftly-flowing stream has recently been completed by the Missouri Pacific Lines. This is a reinforced concrete trestle 534 ft. long across the Nueces river near Uvalde, Texas, and is the only permanent railway structure of its kind in the Southwest. The deck is above normal high water level but considerably below flood stages reached by the stream at infrequent intervals. The substructure is securely anchored to the stream bed and the rails are attached directly to the concrete deck.



Showing the Anchor-Plate Track on the South Side of the River, with the Bridge in the Background

The Nueces river above this location drains an area of approximately 2,000 square miles in a region of rough rocky slopes covered with mesquite and scrub timber and largely devoted to pasture land. While the area is one of very light rainfall, 20 to 25 in. annually, the rains are apt to be torrential and, due to rapid run-off, the Nueces is subject to sudden rises of short duration, generally lasting not more than 24 hours. The river reached the highest stage on record in June, 1935, when it washed out the old railroad bridge, together with a relatively new concrete highway bridge immediately down stream. Both bridges were completely destroyed, the railroad bridge having been seriously damaged on two previous occasions.

The old railroad bridge consisted of four through-truss steel spans on concrete piers, with 300 ft. of pile trestle approaches. It was built on a rock outcrop immediately upstream from a 10-ft. drop in the river bed that causes the velocity of the water to be very high at this point. The deck of this structure was above bank-full stage, but 5 ft. below the crest of the flood of June, 1935. When the Nueces reaches a bank-full stage, it carries a large amount of drift which would seriously threaten steel spans of any type which were not well above high water.

As this crossing is on a branch line where short and infrequent interruptions to traffic are not particularly

serious and floods are not expected oftener than once in three to five years, the problem presented was largely one of economics. With this thought in mind it was determined that a bridge could be constructed at an elevation sufficient to provide ample waterway for the discharge of normal high water at about one-third the cost required to construct a bridge which would provide for flood discharge at the highest known stage. The latter type, if built at the most favorable location, would have required 680 ft. of steel spans and 1,760 ft. of trestle approaches.

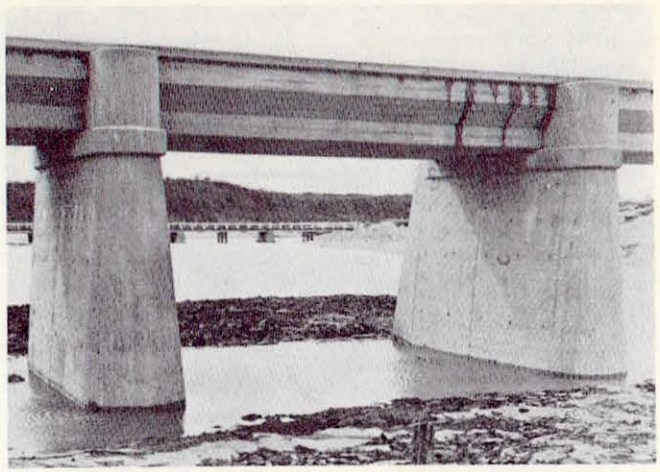
Eliminates Drift Hazard

The base of rail elevation decided upon is 23 ft. below that of the old bridge. In fixing this elevation consideration was given to the fact that the greatest movement of drift occurs above bank-full stages, and this low elevation largely eliminates the hazard created by a collection of drift against the spans. The new structure provides a clear waterway area below the deck of 5,200 ft., and will accommodate an estimated discharge of at least 50,000 cu. ft. per second. Based on records of the last 20 years, such a discharge will not be exceeded oftener than once in about five years.

The forces resulting from the high velocity of the water at flood stages demanded that the bridge have the thinnest possible deck without sacrificing lateral rigidity. The use of standard ballasted track was discarded for a rigid attachment of rails to the slab, thereby eliminating the difficulty of anchoring ballasted track to the deck and obviating the replacement of the ballast that would be lost during every flood that overflowed the deck. Requirements for the structure demanded equal stability in both lateral and longitudinal directions because the current at this point changes its direction at different stages of the river. The greatest overturning force is probably applied during extreme stages when there is no live load on the bridge and when the buoyancy of the water decreases the dead load.

Steep Approach Grades

The location selected for the new bridge was immediately upstream from that of the old bridge, and the low grade line required a cut of 21 ft. in the south bank and one of 6 ft. in the north bank. The bridge deck is on a vertical curve connecting a 3-per cent grade on the south approach with a 1.95-per cent grade on the north approach. The lengths of these grades at each end of the bridge do not exceed the distance over which an engine can handle the tonnage for the ruling grade in this district by gravity operation when entering the grade at a required speed of not more than 30 miles per hour. The track on the approaches within the limits of high-water was anchored to rails driven into the ground on both the upstream and downstream sides.

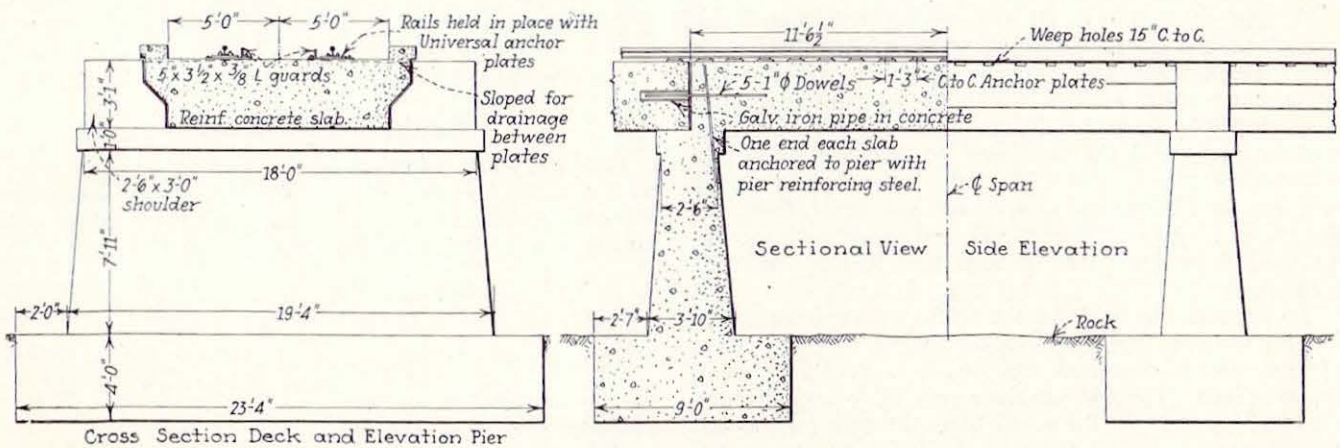


Detail View of Two Piers and a Slab

The new reinforced concrete bridge consists of 23 spans, each 23 ft. 3 in. long center to center of piers, with a total length of 534 ft. 9 in., supported on 22 piers and 2 abutments. A very tough asphaltic rock was exposed in the river bed at this location and the bases of all piers extend at least four feet into the rock. In making the footing excavations, the rock was taken out by hand with minimum disturbance of the native rock bed, and these excavations were competely filled by the footing concrete. The reinforcing steel for the shafts of the piers and abutments was hung from frames and hooked with ample bond into the footings, thus avoiding a splice in the steel at the construction joints. The shafts were keyed to the bases. The upstream noses of the pier shafts were battered 3½ in. per foot and the sides and the downstream ends were battered 1 in. per foot. The ends of the piers beyond the sides of the slabs were carried up to the tops of the slabs to form shoulders that hold the deck against lateral movement.

The Slabs

The slabs are 3 ft. thick, 10 ft. wide at the bottom and 12 ft. wide at the top. Parapets 15 in. wide, extending 6 in. above the top surface of the slabs, were provided primarily for appearance, although they afford some protection for derailed cars. The reinforcement conforms to usual practice. The slabs were cast in place and are all anchored at one end by extending vertical pier rods into the slabs. However, the expansion ends

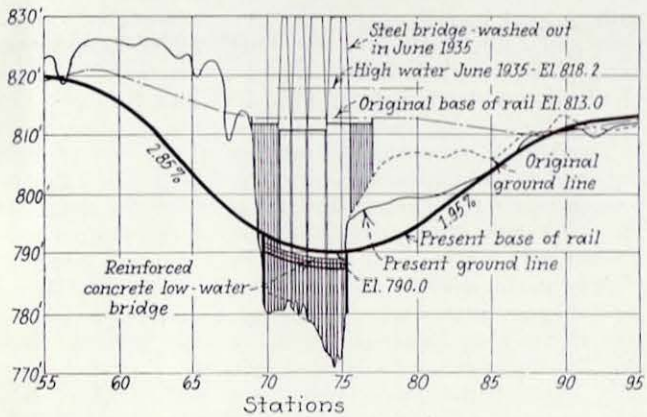


Details of a Typical Span of the New Nueces River Bridge

of the slabs have an unusual detail in the form of a slip-joint dowel connection to the fixed ends of the adjacent slabs. Five smooth-rod dowels 1-in. in diameter projecting horizontally from the fixed end, extend into galvanized iron pipes cast into the free end. Thus, the free end of the slab is held in alinement without interfering with its longitudinal movement.

The track on the bridge consists of 90-lb. rail secured to the tops of the slabs by means of Universal anchor tie plates. These plates, as the name indicates, anchor the rail against movement longitudinally as well as laterally, fit any rail from 90-lb. to 131-lb., and provide for adjustment of both gage and line. The anchor tie plate bears on a masonry plate held in place by anchor bolts through the masonry plate and the four corners of the anchor plate. The rail is firmly fastened by means of two eccentric cams and bolts attached to the plate.

The masonry plates, 9 in. by ¾ in. by 22¼ in., and spaced 14⅝ in. center to center, provide sufficient bearing on the slabs for the distribution of the wheel loads transmitted by the rail through the anchor tie plates. Angles, 5 in. by 3½ in. by ½ in., bolted to the masonry plates with anchor bolts fastened in the concrete, serve as inside guard rails. The masonry plates were seated



Profile of the New and Old River Crossings

on two-ply 14-oz. duck dipped in red lead paste. The anchor bolts had to be accurately set in the concrete and to accomplish this they were hung on templates fastened to the top of the forms when the slabs were poured. The slabs were cast against the templates and no difficulty was experienced in finishing off the bearing for setting the plates to precise grade after the templates were removed.

Concrete Work

A total of 2,350 cu. yd. of concrete was mixed and placed on the entire job in accordance with 1935 A.R.E.A. specifications for 3,000-lb. concrete, except that a minimum cement content of six sacks per cubic yard was specified. Actually six sacks per cu. yd. were used for the piers and 6.4 sacks per cu. yd. for slabs. An accurate control of the mix resulted in a very uniform strength well above the design strength of 3,000 lb. per sq. in. at 28 days. The gravel and sand used for aggregates were both well graded and had a low void content.

To prevent the track on the steep grades from creeping toward the bridge Universal anchor tie plates were applied also to the track ties on the approaches, using screw spikes. The cut on the north bank was through a gravel bar and on the south bank through caliche and gravel, except for a distance of about 200 ft. at the south end of the bridge, where about 3 ft. of solid rock had to be excavated. It is expected that the cuts on both banks will have to be cleaned out after each major flood as some gravel will undoubtedly be deposited in them. This operation should be relatively simple as the river rises very rapidly and backwater in the cuts quickly prevents excessive scour. No great amount of delay or expense is anticipated on this account.

The plans for this structure were developed in the Houston office of the Missouri Pacific Lines under the direction of C. S. Kirkpatrick, chief engineer, and R. Owen, construction engineer, to whom we are indebted for the information presented here. The bridge was constructed by the Austin Bridge Company, Austin, Texas.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended July 18 totaled 720,402 cars, a decrease of 3,922 cars as compared with the week before, in which the highest loading for a week this year occurred, but an increase of 127,730 cars, or 21.6 per cent, as compared with the corresponding week of last year. All commodity classifications showed increases over last year's figures. Miscellaneous freight increased 47,895 cars and grain and grain products increased 25,171 cars, but merchandise, miscellaneous, live stock, ore, and coke showed decreases as compared with the preceding week. The summary, as compiled by the Car Service Division of the Association of American Railroads, follows:

Revenue Freight Car Loading
For Week Ended Saturday, July 18

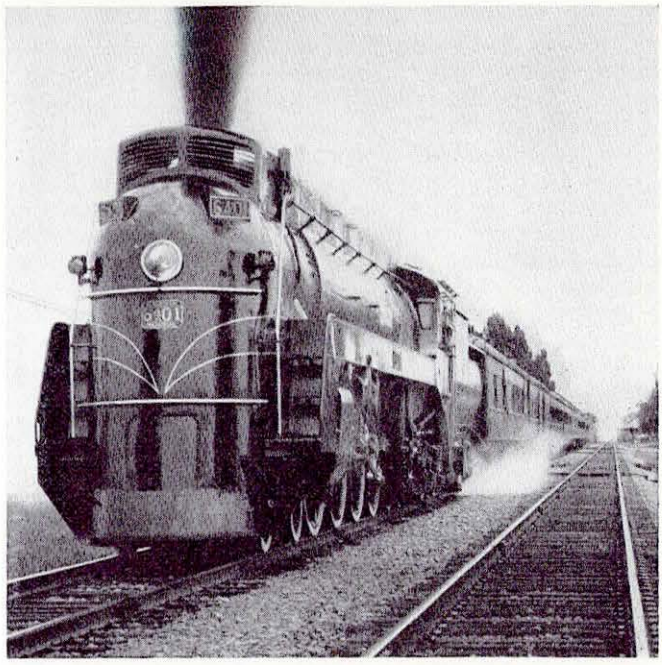
Districts	1936	1935	1934
Eastern	148,591	129,198	132,634
Allegheny	147,020	113,322	117,358
Pocahontas	48,024	38,443	40,783
Southern	94,166	80,333	80,669
Northwestern	115,598	90,077	95,453
Central Western	110,883	92,755	98,954
Southwestern	56,120	48,544	50,189
Total Western Districts	282,601	231,376	244,596
Total All Roads	720,402	592,672	616,040
Commodities			
Grain and Grain Products	58,555	33,384	47,171
Live Stock	12,315	10,164	26,214
Coal	108,510	89,701	97,713
Coke	8,660	4,679	4,502
Forest Products	33,988	28,415	22,071
Ore	53,680	34,122	32,496
Merchandise L.C.L.	160,472	155,880	158,636
Miscellaneous	284,222	236,327	227,237
July 18	720,402	592,672	616,040
July 11	724,324	565,602	604,192
July 4	649,759	471,126	520,741
June 27	713,639	616,863	646,003
June 20	690,716	567,049	623,322
Cumulative Total, 29 Weeks	18,685,355	16,790,029	17,177,596

Car Loading in Canada

For the week ended July 18 Canada's car loading total was 45,496, says the report from the Dominion Bureau of Statistics. Last year the summation was 45,294 and in the preceding week it was 47,912.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
July 18, 1936	45,496	21,280
July 11, 1936	47,912	21,251
July 4, 1936	43,172	22,577
July 20, 1935	45,294	19,364
Cumulative Totals for Canada:		
July 18, 1936	1,262,406	676,482
July 20, 1935	1,244,782	635,544
July 21, 1934	1,224,901	660,555

Streamline Passenger Locomotives for Canadian National



Five 4-8-4 type with 77-in. driving wheels will haul heavy fast trains between Montreal and Sarnia

DURING June and July the Canadian National has received five partially streamlined locomotives of the 4-8-4 type from the Montreal Locomotive Works. These locomotives, which are the first to be streamlined in Canada, are to haul the heavy fast passenger trains between Montreal and Toronto, and Toronto and Sarnia.

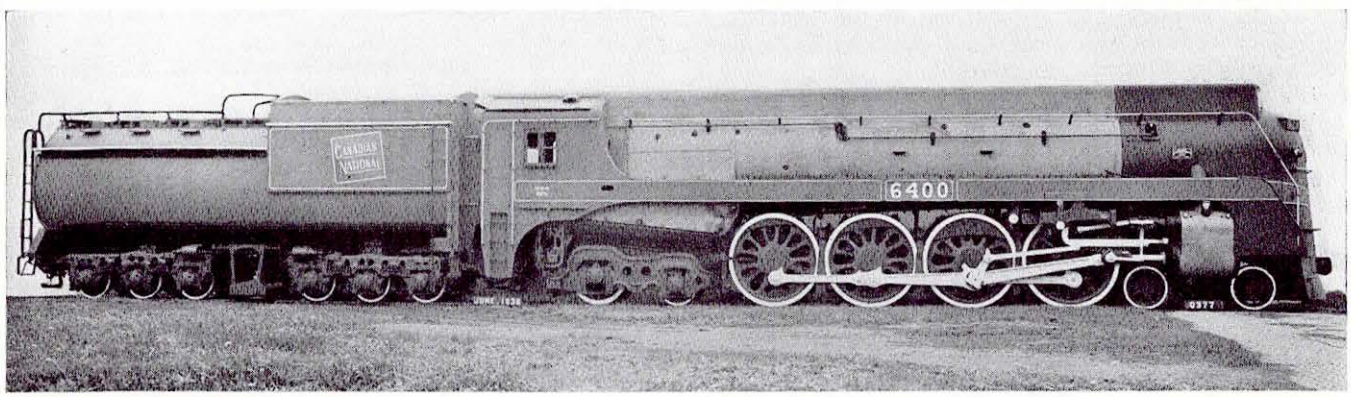
In the table is a comparison of the new 6400 locomotives, Class U4A, with their two most recent predecessors in the passenger locomotive inventory of the road. These are the 4-6-4 type, built in 1930, for fast passenger service, and an earlier 4-8-4 type, built in 1929, for heavy passenger and fast freight service. The new locomotives, which have driving wheels 4-in. larger in diameter, will replace the latter in passenger service, releasing them for freight service.

From the dimensions in the table it will be seen that the boiler of the new 4-8-4 type is similar to that of the 4-6-4 type. The principal differences are in the length of the combustion chamber and of the tubes and flues. There is no change in grate area. This places the new locomotives, with respect to boiler capacity, in a position intermediate between the other two classes. In point of starting capacity, however, the new locomotives, which are not equipped with boosters, are slightly less powerful than the 4-6-4 type with the tractive force of the booster included.

The boilers of the new locomotives, like those of the two preceding classes, include Type E superheaters and two Nicholson Thermic-Syphons which are built into the firebox. Under the front corner of the mud ring on the left side is an Elesco exhaust-steam injector.

The driving-wheel centers are the Blunt design of the Boxpok type. The application of this type is steadily extending as a measure to overcome the flattening and distortion which develops with age in the solid spoke type of casting. Floating-bushing driving boxes of the type which has been extensively applied to the locomotives of this road are fitted on the main and intermediate driver journals, and all driving box pedestals have Franklin automatic wedges. The Alco lateral-motion cushioning device is fitted on the front driving axle. The main driving wheels are cross counterbalanced.

The frames are separate bar-type, steel castings, fitted with a General Steel Castings Corporation cradle casting



Partially Streamlined Locomotive for Fast Passenger Service on the Canadian National

at the rear. Both engine trucks and the tender trucks are of General Steel Castings design. The trailer truck is of the four-wheel Delta type, the front wheels of which are fitted with a lateral motion device. All engine-trailer- and tender-truck journals are fitted with S.K.F. roller bearings.

The main and side-rod crank-pin bearings are of the floating bushing type. The crosshead guides are of the builder's single-bar type. The axles and crank pins are of heat-treated steel.

The valve motion is of the Baker long-travel type, driving 12-in. piston valves. Steam is drawn through a Tangential dryer to the American multiple throttle. The locomotives are fitted with Barco reverse gears. Hancock automatic cylinder cocks are applied to the cylinders.

The tenders are of the Vanderbilt type. The bottom tank plate, which is 1 in. in thickness and is well braced inside, forms the tender frame. Steel draw castings are riveted and welded underneath this plate at the ends. A Whalen track sprinkler is located under the tender, to be operated by a valve in the cab for the comfort of the passengers when passing over dusty track.

The partial streamlining of these locomotives was developed by J. H. Parkin, assistant director of the Division of Physics of the National Research Council at Ottawa, and his assistant, Dr. J. J. Green, working with the officers of the motive power department of the railway. The design embodies the results of extensive wind-tunnel tests with models.* It comprises a casing around the front end of the locomotive approximately semi-cylindrical in form, molding into a spherical sector where it joins the top of the smokebox. Over the center of the boiler, covering the stack, the sandbox and the dome, is a smooth casing which is faired into the cab roof at the rear end. Louvres in the front end of this casing admit air around the stack, which is deflected, in passing up and out at the top, so that it lifts the smoke and cinders clear of the top of the locomotive and away from the cab when the locomotive is drifting.

A Comparison of Three Classes of Canadian National Locomotives

Type	4-8-4	4-6-4	4-8-4
Road number	6400	5700	6151
Year built	1936	1930	1929
Rated tractive force, engine, 85 per cent, lb.	52,000	43,300	56,800
Tractive force with booster, lb.	None	53,400	None
Weight on drivers, lb.	236,000	188,600	232,200
Total weight of engine, lb.	379,800	356,400	383,000
Driving wheels, diameter, in.	77	80	73
Cylinders, dia. and stroke, in.	24x30	23x28	25½x30
Steam pressure, lb.	275	275	250
Tubes, number and diameter, in.	44-2¼	44-2¼	42-2¼
Flues, number and diameter, in.	146-3½	146-3½	167-3½
Length over tube sheets, ft. and in.	21-10	19-0	21-6
Grate area, sq. ft.	73.7	73.7	84.4
Firebox heating surface, including arch tubes and syphons, sq. ft.	390	345	432
Total evaporative heating surface, sq. ft.	3,861	3,377	4,244
Combined evaporative and superheating surface, sq. ft.	5,391	4,867	6,175

The cabs are of the short-vestibule type of welded steel construction. To direct air currents along the side of the boiler up and over the top of the cab its front walls are joined to the running boards in sweeping curves. Forming a continuation of the side surfaces of the cab are shallow aprons which extend forward to the front ends of the running boards and conceal the piping supported below the running boards.

The air compressor and the headlight generator are located on the front deck behind the casing. The bell is mounted behind the louvres which open in front of the stack. The front coupler is hinged and folds up inside the casing and the opening in the casing is covered by a door. Within the casing above the boiler are the injector top checks, the safety valves and two main air reservoirs. Doors in the top of the casing provide access to the space within the casing. The whistle, pneumatically operated, is placed against the outside of the casing over the left side of the smokebox.

The cab is fitted with Airvac ventilators. On the right side the front window is of the Kent clear-vision type. This consists of a glass disc which, by being revolved at high speed, insures clear vision under storm conditions.

More color has been used on the exterior of these locomotives than has heretofore been the custom on the Canadian National. The front of the locomotive back to the boiler jacket is black, as is also the running gear, except for the aluminum paint on the tires and the polished rods. The running board apron, the cab and the tender are green to match the color of Canadian National passenger cars. The striping is gold and the lettering is gold on a red ground. The number of the locomotive on the side is bronze on a red ground. The boiler jacket and top casing are of planished steel.

General Dimensions and Weights of the Canadian National 4-8-4 Type Locomotives

Railroad	Canadian National
Builder	Montreal Locomotive Works
Type of locomotive	4-8-4
Road class	U4A
Road numbers	6400—6404
Date built	June, 1936
Service	Fast passenger
Rated tractive force, engine, 85 per cent, lb. (max.)	52,000
Rated tractive force booster, lb.	None
Weights in working order, lb.:	
On drivers	236,000
On front truck	61,000
On trailing truck	82,800
Total engine	379,800
Tender	284,200
Wheel bases, ft. and in.:	
Driving	20-0
Engine total	44-1½
Engine and tender total	82-7½
Driving wheels, diameter outside tires, in.	77
Cylinders, number, diameter and stroke, in.	2—24 x 30
Valve gear, type	Baker
Valves, piston type, size, in.	12
Maximum travel, in.	9
Boiler:	
Steam pressure, lb.	275
Diameter, first rings, inside, in.	78
Firebox length, in.	126¼
Firebox width, in.	84⅜16
Combustion chamber length, in.	49
Thermic syphons, number	2
Tubes, number and diameter, in.	44-2¼
Flues, number and diameter, in.	146-3½
Length over tube sheets, ft. and in.	21-10
Fuel	Soft coal
Stoker	Standard type BK
Grate area, sq. ft.	73.7
Heating surfaces, sq. ft.:	
Firebox and comb. chamber	292
Arch tubes	15
Syphons	83
Firebox, total	390
Tubes and flues	3,471
Evaporative total	3,861
Superheating	1,530
Combined evap. and superheat.	5,391
Tender:	
Style	Vanderbilt
Water capacity, Imp. Gal.	11,700
Fuel capacity, tons	20
Trucks	Six-wheel

During break-in runs these locomotives are said to have handled trains of more than 3,500 tons over the line including the one per cent grade on Vandreuil Hill, the ruling grade between Montreal and Toronto. On other portions of the line speeds of 50 to 60 m.p.h. are said to have been made.

The principal data and dimensions for these locomotives are given in the table.

* For an account of these tests, see the *Railway Age* of May 13, 1933, page 695.

The Canadian Roads Have Co-ordinated Rail and Highway to a High Degree

Speed and Efficiency in Handling Merchandise

Superintendents' Association considers all phases of efficient movement of l.c.l. traffic

Part I

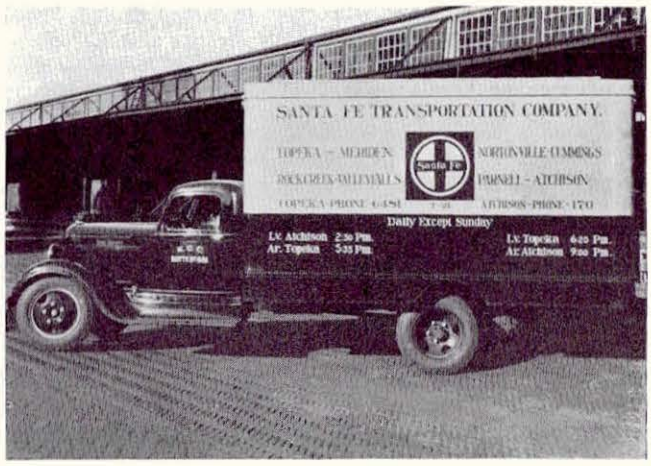
THE report of the committee on Meeting Today's Demands in Handling Merchandise Traffic, presented at the convention of the American Association of Railroad Superintendents at Chicago on June 17, was largely concerned with motor transport as a means of cutting costs and providing more flexible service. This report, which was presented by Chairman W. L. Fox, general superintendent, Chicago & Western Indiana, is abstracted below:

The experience of the railways which have had the most success in regaining merchandise traffic, points to the desirability of putting the solicitation, rate making and, to a certain extent, the handling, of less-than-carload traffic in the hands of some one officer. This officer is known by various titles on various railroads but in each case he serves as a liaison officer not only between the shippers and the railway but between the operating and the traffic departments as well. Such an officer reports directly to the traffic vice-president, and has under his jurisdiction a staff of freight solicitors who confine their attention principally to the soliciting of merchandise traffic and to discovering the needs of the shippers in this respect.

Included among the railroads which have such organizations in successful operation are the Texas & Pacific, the Southern Pacific (with separate organizations for the Coast lines and the Texas lines), the Missouri Pacific and the Spokane, Portland & Seattle.

The Missouri Pacific goes even further along these lines and has a staff of investigators who not only solicit merchandise traffic but who also examine the operations on the shippers' and receivers' loading and receiving platforms, checking the type of service being rendered by the highway truckers, and discovering the requirements of the shippers and the receivers. From their reports the railroad determines whether it can render service equal to that given by the competitors.

This system of joint operating and traffic investigation has been highly successful in bringing merchandise traffic back to the rails, and the experience of the railways which have done most along these lines is that it is not merely sufficient to provide the service that the shippers ought to want in the opinion of railway officers, however well informed they may be, but that it is necessary to find out what such shippers actually do want and give it to them so far as possible, before an appreciable increase in merchandise tonnage is to be obtained and kept. It has been found that there is no panacea that will cover all shippers alike. Each shipper has his own individual operating and traffic problems



This Truck Avoids Much Stopping of Through Freight Trains

which determine his choice of the railway or the highway truckers as a transportation agency. In many cases it is discovered that some trivial thing that is easily remedied is diverting the merchandise traffic from the railway to the highway competitors.

The provision of fast overnight freight service from jobbing centers to consuming points is now quite general all over the country and this includes, in many cases, overnight service with early morning deliveries at points up to 500 miles distant from the jobbing centers. In this connection a system of co-ordinated inter-city truck lines under railroad operation has been found a valuable adjunct to increase the speed of merchandise movement. Under this plan, which is followed in many sections of the country, the merchandise is handled by train from the jobbing centers to certain distribution points where the cars are set out and their contents transferred to trucks for local distribution. The avoidance of many of these local stops by the trains, by means of truck service, has been an important factor in holding down the increased operating costs made necessary by the increased speed. However, each case should be considered on its merits, with as accurate cost studies as possible, as it has been found that the present demand for speed may easily result in uneconomical and unprofitable operations.

Use is also being made of through and local passenger trains to handle merchandise traffic in cars suitably equipped for passenger service, when a necessary connection or delivery cannot be effected in other ways. Faster train schedules frequently permit of economies by allowing the consolidation of traffic on transfer points and connection from such points with assigned trains, instead of loading light cars direct from the main terminals. Such an arrangement has in many cases effected a marked reduction in car miles. With the co-operation of the freighthouse staffs, the loading of straight merchandise cars for the faster schedules can be materially increased, as has been proved, among others, by the Canadian Pacific and the Canadian National in their Montreal-Toronto merchandise service.

The make up of fast trains is also important. Superintendents should see to it that merchandise cars reach the main terminals in one certain place in the trains. As operations dictate, this may be either just ahead of the caboose or first behind the locomotive. On trains where live stock must be handled immediately behind the locomotive, the merchandise may be placed first behind the live stock. This enables the car inspectors to perform the necessary work on these cars and to release them immediately for prompt switching to the freight shed, and avoids the necessity of having to inspect the whole train before the merchandise may be switched, as is the case when merchandise cars are scattered through the train.

An interesting case of the use of co-ordinated highway transportation to improve schedules is to be found on the Santa Fe between San Francisco and Los Angeles. The Santa Fe has a direct line from San Francisco in the direction of Los Angeles as far as Bakersfield, but from that point the line proceeds east to Barstow before turning west into Los Angeles. This roundabout approach to the southern terminal made it impossible to meet the highway truckers' schedules, but the Santa Fe has solved the problem by the running of a fast merchandise train from its San Francisco Bay Terminal at Richmond to Bakersfield and by making a contract with a trucking company to handle the freight over the direct highway between Bakersfield and Los Angeles instead of continuing via the circuitous rail route. Many hours are thus saved and a comparable service is made possible.

These fast train services have brought about certain problems in the handling of billing. In cases where schedules permit, the difficulty has been solved by sending the waybills by passenger train so that they will arrive and be worked before the arrival of the merchandise train. In other cases where this has not been possible the waybills are telegraphed or telephoned ahead so that there may be no delay because of necessary paper work to interfere with these fast schedules.

The working out of fast merchandise schedules on most of the individual railroads has now been brought to a high degree of efficiency so far as shipments of only one line are concerned. There is still, however, room for much improvement where transfers en route from one railway to the other are involved. Transfer points should be so located that freight may be handled with minimum delay. One of the most frequent causes of delays between roads is that shipments for a connecting line arrive in a car in which shipments for local delivery are also loaded. The local deliveries are handled first and then the connecting line freight. As a result the connecting line shipments are subjected to a terminal delay of several hours, which is important in itself and even more important in that it frequently results in missing the fast schedules of the receiving lines. Much remains to be accomplished not only in improving such transfer service but in saving expenses. Well located joint transfer houses at the larger terminals would save handling expenses and expedite less-than-carload shipments. Joint less-than-carload cars between stations and transfer houses, or vice versa, would aid the service and show a saving in operating expenses. In the dictates of efficiency, joint stations and joint transfers should be considered and made effective wherever such operations would improve the service and make a saving in operating costs. Station and transfer costs are easily pro-rated and it should not be difficult to work out a formula to cover costs on joint through cars. At some terminals, the problem of delays has been solved in a measure by the use of highway trucks in making interchange of merchandise.

Fast freight service has not been given the prominence in the public eye that fast passenger service has received, with attendant benefits reflected in the increase in passenger business. It should be considered as a prime duty by the superintendent to give this fast freight service as wide publicity as possible, to be proud of it and to instill a similar pride in his subordinate operating officers and employees so that they, too, will aid in acquainting the shippers and receivers with the new service. In its way this fast freight service represents as remarkable a stride in modern transportation as do the super-speed passenger trains and while it may not be as romantic and have as general an appeal, it is none the less an achievement of which the railways may be proud and to which the widest publicity should be given in order to obtain the best results from traffic and revenue standpoints.

Part II of this article will follow in an early issue.

U.P. to Build First Steam Turbine Electric Locomotive

THE first steam turbine electric locomotive to operate on an American railroad will be constructed by the Union Pacific and the General Electric Company, this action being one of the first developments of the recently formed research department of the railroad. The locomotive will consist of two 2,500 hp. self-contained units, which can be operated individually or in synchronization and will be capable of a maximum speed of 110 m.p.h. with a trailing load of 1,000 tons. Delivery is expected early in 1937. The design of the locomotive is such that by operating both units it will be possible to maintain the schedules of the Los Angeles Limited, The Challenger or other limited trains in transcontinental service. With either unit it will be possible to maintain the schedule of the Streamliner City of Denver.

The weight of the new locomotive will be approximately 20 per cent less than that of a conventional steam locomotive, and lighter than the Diesel electric locomotives now used on Union Pacific streamliners. It will use fuel oil of approximately the same grade as that used for the conventional oil-burning steam locomotives and will also be equipped to use distillate.

Each of the units will be of the 4-6-6-4 type, the size of the wheels being 36 in.-45 in.-45 in.-36 in. respectively. The locomotive will have fuel and water capacity for a continuous operation for a minimum of 550 miles without refueling. The steam turbine of each unit will be connected directly to a 225 kilowatt, 3-phase, 60-cycle, 220-volt generator, which will provide electricity for the six traction motors, one of which will be mounted on the axle of each pair of the six driving wheels on each unit.

Multiple Car Rates in Michigan

State commission holds rate to meet competition cannot be discriminatory, since discrimination, if any, has been created by competitors

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SINCE the publication in the *Railway Age* of September 7, 1935, of the article dealing with the question "Are Trainload Lot Rates Feasible?", a number of comments have been received by the author commending the principle of trainload lot rates as a desirable development in rail transportation affording shippers of bulk traffic economical distribution and permitting the rail carriers to move such traffic in solid trains without intermediate classification of the cars, or condemning the practice as tending to unduly favor large shippers to the prejudice of smaller.

Of special interest in this controversial matter is the decision and order of the Michigan Public Utilities Commission in the complaint of the Michigan Trucking Association et al, against certain tariffs of the Pere Marquette, Michigan Central and Grand Trunk Western Railroads. (D. 2945, June 24, 1935.)

Truck and Water Competition

These three railroads filed, to become effective upon the statutory notice required by the Michigan Public Utilities Law, tariffs naming freight rates upon sand and gravel in shipments of fifteen carloads as minimum applicable in intrastate commerce.[1] The complaint of the Michigan Trucking Company, the Michigan Limestone & Chemical Co., and the Kelley Island Limestone & Transport Co. was filed on April 10, 1935, by Edward C. Levy, acting on his own behalf as well as upon behalf of the previously named complainants. The complainants petitioned the Michigan Public Utilities Commission to reject and refuse to allow the tariffs of the respondent railroads to become effective on the appointed date, the same date upon which the petition was filed. The rates having already gone into effect, the Commission chose to consider the petition as a complaint against the rates rather than as a petition for the suspension of the tariffs. The respondent railroads were given twenty days' notice of the complaint and all parties were given the required ten days' notice of hearing. The Ward Sand & Gravel Co., the Koenig Coal & Supply Co. and the American Aggregates Company were permitted to intervene on behalf of the respondent railroads and the Great Lakes Steel Corporation was permitted to intervene on behalf of the complainants.

The tariffs attacked published rates of 40 cents per ton on sand and gravel in trainload lots of 15 carloads or more from Oxford, New Hudson and Green Oak, Mich., to points on the lines of the three railroads within a certain area of the Detroit switching district. Two questions were raised by the complaint: first, whether or not the fifteen car minimum gave undue or unreasonable preference or advantage to any particular person, firm or corporation in violation of the Public Utilities Act; and second, whether or not the delivering restrictions constituted undue discrimination.

The respondent carriers at the hearing held on May 3, 1935, took the position that the petition should be dismissed upon the grounds that the complainants were not shippers by rail proposing to ship sand or gravel in fifteen carload lots or in any other quantities; that the petition being for the rejection of the tariffs should have been filed prior to the effective date of the tariffs and not after the tariffs had gone into effect; and that the rates named in the tariffs were not discriminatory. The representative of the intervener on behalf of the complainant had written to the Commission five days before the tariffs went into effect calling attention to numerous citations from opinions of the Interstate Commerce Commission and drawing from these decisions and dicta the conclusion that the Michigan Public Utilities Commission should declare the tariffs in question unlawful and require their withdrawal. No petition was made, however, to suspend the tariffs or to take any other action. This communication was, therefore, not treated as a petition of intervention, but at the hearing, it was decided by the Commission to treat it as a petition of intervention on behalf of the complainants. Two issues were brought before the Commission: first, the legality of rates based upon the fifteen carload minimum consignment; and, second, the propriety from the standpoint of discrimination of the delivery restrictions.

Earlier Reasoning of I. C. C. "Unimpressive" Today

The legality of special rates applicable upon quantities of freight greater than a single carload or trainload lot rates had to be decided without reference to its own precedents by the Michigan Commission, for neither the Public Utilities Commission as at present constituted, nor the predecessor boards or commissions had decided any cases involving the point. After reviewing some of the decisions of the Interstate Commerce Commission upon multiple carload freight rates, and analyzing the evidence with respect to the arrangement for special rates lower than the concurrently applicable freight rates upon sand and gravel, the Michigan Commission decided that nothing in the Statutes of Michigan nor in the facts in the case justified a decision that a trainload freight rate as such is unlawful. "We are not impressed with the reasoning of the Interstate Commerce Commission in its earlier years with regard to trainload rates. We believe the rail carriers should be given reasonable latitude in meeting competition. We would, in any event, be loath to disturb the trainload rates heretofore in effect."

The reasoning of the Interstate Commerce Commis-

[1] Michigan Central tariff M.P.U.C. 2138 substituted by M.P.U.C. 2142; Pere Marquette tariff M.P.U.C. 3679 as substituted by M.P.U.C. 3695; and Grand Trunk Western tariff M.P.U.C. 1314.

sion in its earlier years to which reference was made in this very significant decision refers to several decisions and dicta of the Commission referred to in the previous article, "Are Trainload Lot Rates Reasonable?", and to several others which are noteworthy in the more complete discussion of this subject.

Providence Coal Case Not a Trainload Question

One of the first cases to come before the Interstate Commerce Commission was a rebate case, which has sometimes been urged is a precedent against trainload lot freight rates,—the case of the Providence Coal Company versus the Providence and Worcester Railroad Company.[2] In this case, the railroad had established rates providing for the repayment by the carrier of a 10 per cent rebate to any person who received consignments of coal amounting to 30,000 tons or more at any station on the rail carrier's line in any one year. No question of trainload lots was involved, because a person could collect the rebate if the consignments were received in single car lots, provided of course the requisite annual minimum quantity was received. The complaint and the testimony in the case showed that this rebate which amounted to as much as the wholesale dealers' usual margin of profit, could be paid only to one dealer, who alone of all the dealers in the district could comply with the minimum annual receipts provision of the tariff. The Commission found the rate to be unduly discriminatory and illegal under the Interstate Commerce Act.

Judge Thomas M. Cooley, then Chairman of the Commission, who wrote the opinion of the Commission in this case, took pains to indicate that the Commission was not ruling upon carload as against trainload lot rates. "A distinction in rates between carloads and smaller quantities is readily understood and appreciated; but no such distinction is made in this offer, and a customer of the road who shall receive all of his coal by carload, or even trainload, would be excluded if he fell short in quantity." As the Michigan Public Utility Commission in the Sand and Gravel Case cited above expressively states: "The reasoning (of Judge Cooley in this case) squints at least in the direction of a declaration that trainload rates might be approved." The fact that the complaint in this case did not involve trainload lot rates as well as the fact that Judge Cooley's dictum may be construed as falling short of the condemnation of such rates, are ignored and the part of the decision in the Providence Coal Case condemning rebates as fostering monopoly is cited as if it condemned trainload lot freight rates as coming within the condemnation of the Commission in this case.

What Judge Cooley did say in the opinion in this case condemning rebates based upon annual volume of traffic and not trainload lot rates is worth repeating: "If, therefore, a discount were to be offered in order to insure quick dispatch, a discrimination which should so limit the offer that a part of those who could and might desire to accept it would be excluded from its benefits, would for that very reason be unjust and indefensible. . . . A discrimination such as the offer and its acceptance by one or more dealers would create, must have necessary tendency to destroy the business of small dealers. . . . A railroad has no right by any discrimination not grounded in reason, to put any single dealer,—whether a large dealer or a small dealer, to any such destructive disadvantage." [3]

In another dictum in a later case concerning the use of a private passenger car equipped with samples and not touching the question of trainload lot freight rates in the remotest particular, Chairman Knapp observed that discriminating results were liable to attend the substitution of private for public equipment even when the rates for such services were open rates strictly observed and fair and reasonable for the services rendered. Continuing, he stated: "Nor is it sufficient in every case that a relation of rates, just from the carrier's standpoint, is maintained as between shipments of the same article by different methods or in different quantities. For example, a carload rate lower than the less than carload rates, where the difference is not too great, would ordinarily be lawful; but a still lower rate for shipments of a hundred or a thousand carloads, though duly published and impartially applied, would be wholly indefensible. If a low rate is granted on conditions with which only a few can comply, that rate is presumably unfair and may be extremely prejudicial to all other shippers of like traffic, because they are practically unable to meet the terms upon which it is offered." [4]

It is patent that Commissioner Knapp was not referring to trainload lot rates but to rates based upon the shipment of the specific minimum number of cars during a period of time. Obviously, freight is not moved in "shipments from a hundred to a thousand carloads" at one time. Trains of a hundred carloads are commonplace now but rare indeed in 1901, and trains of a thousand cars are far beyond the horizon even now.

Lower Costs a Logical Basis for Trainload Rates

One of the cogent reasons for considering trainload lot freight rates is that the costs of operation by railroad can be reduced materially by the operation of solid trains.

The movement of trains is expedited and yarding services at the points of origin, at intermediate points and at destination are reduced to the veriest minimum. After the empty cars are placed in strings, they can be loaded, an engine attached to the train and the entire movement transported without sorting the cars at yards at origin, at intermediate points or destination. Motive power can be changed when required at intermediate or junction yards. The economies thus achieved can be reflected in lower rates for such movements without unjust and unreasonable discrimination. Certainly such rates should not be considered in the light of rebates which are forbidden by the Interstate Commerce Act and condemned by such decisions of the Interstate Commerce Commission as the Providence Coal Company case.

In the Michigan sand and gravel case there was evidence introduced indicating that the value of fifteen car trainload shipments of sand or gravel was from $250 to $1000. No evidence was offered that dealers were unable either to finance the purchase of such trainload lots or to dispose of consignments of this size. No testimony was adduced that any dealers were in danger of being forced out of business by the arrangement. There was some testimony that small dealers handling sand and gravel along with other building materials who did not ordinarily purchase trainload lots were benefited from trainload lot rates through purchasing from wholesale dealers. One witness testified that his company was not accustomed to buying as many as fifteen carloads of sand or gravel at one time and that it would be inconvenient to handle that

[2] 1 I.C.C. 107, decided July 23, 1887.

[3] 1 I.C.C. 107, 117, 118.

[4] Carr v. Northern Pacific R. Co. (9 I.C.C. 1, 14), decided April 3, 1901.

amount, but he testified also that his company did purchase sand by the boatload.

Although, as has been stated, the question of the lawfulness of trainload lot freight rates had never before been brought before the Michigan Public Utilities Commission or predecessor regulatory bodies, trainload lot rates were not new. Such rates were used in the transportation of lumber. Originally the rates were based upon contracts entered into by shippers and the railroads, but later tariffs were published superseding the prior contracts made illegal by the Public Utilities Act. A typical tariff of this sort published a rate of $2.25 per thousand board feet between Stratford and Muskegon, Michigan, via the Pere Marquette Railway applicable to shipments of eighteen or more carloads.[5] This tariff was originally put in effect in 1908 to replace a contract with a lumber company.

Michigan Has Other Trainload Rates

In addition to the tariffs naming rates upon sand and gravel in trainload lots, several other trainload lot tariffs are in effect at the present time in Michigan intrastate commerce. One of these tariffs publishes a rate of $12 per car between Mount Pleasant and Midland, Mich., via the Pere Marquette, in lots of approximately ten cars per day, subject to a minimum of six cars per day.[6] The Michigan Central publishes a switching rate of $10 per car in lots of three or more cars between the main plant of the Great Lakes Steel Corporation and the Michigan Steel Division plant of the same corporation.[7] Another tariff of this kind is published by the Detroit, Toledo & Ironton establishing a rate of $14 per car in lots of five or more carloads between the River Rouge plant of the Ford Motor Company and Ecorse plant of the Great Lakes Steel Corporation.[8]

It was argued that the establishment of multiple carlot switching rates was inadmissible as a precedent for the establishment of trainload lot line-haul rates because of the sharp line of demarcation between switching movements and line-haul service. While conceding the soundness of the reasoning, the Michigan Commission did not find it applicable to the case, because the movements in both instances, switching and line-haul, included something that might be likened to a line-haul and something that might be likened to switching movement.

The Commission in its decision stated:

"Since line-hauls are ordinarily made by train movement and since switching involves primarily the delivery of individual cars to particular sidings, it would be proper to establish rates made up of three specific charges: one for the switching that resulted in the assembling of a train, one for the line-haul of the train, and another for breaking up the train and placing individual cars on sidings. Were rates so made it would be absurd to make any concession in the line-haul rate for shipment of several cars or a trainload at one time. And it would be reasonable to make concessions in the two switching charges or either of them for shipment of more than one car at a time.

"Rates have never been made that way. One reason for the present system, which combines switching and road haul charges, is that many movements involve not two but many switching operations and not one but several road hauls. A tariff that would account accurately for each movement would be preeminently fair and reasonable, but it would be so complicated that no one but the man that made it could understand it. The accounting that would be necessary to such a rate structure would bankrupt the carriers even in times of prosperity."

The Commission found little difference between the movement of a fifteen-car train in the line-haul involved in this case and a switching movement of three or more cars. Both involve movements akin to switching movements and to line movements. The economy in railroad operation in each instance grew out of the switching movements. In the case of the sand and gravel movements the economy could be reflected only in the total rate, while in the case of the so-called switching movements, the savings could be reflected only in the switching charges. "If there is a difference in the situations underlying these . . . rates, it favors the line-hauls, because the train minimums are higher in the tariffs governing them and because they apply to low value commodities in relation to which there can be no question of promoting a monopoly."

Not a Commission Function to Prevent Railroads from Meeting Competition

The rates on sand and gravel involved in the Michigan case were made to meet motor truck and water competition. Testimony was introduced to show that there was potential motor truck competition from one of the pits and actual from numerous other pits within a 40-mile zone around Detroit. Testimony revealed that water competition was actual and intense, in fact, "lake sand" was brought by water into the Detroit market and sold at delivered prices lower than the railroad freight charges alone until the rail charges were reduced by the establishment of the trainload lot freight rates. This competition, it was found, had practically closed the market to the pits at the points of shipment covered by these tariffs.

The Commission found that the complainants had failed to show that the tariffs were unlawful in violation of the statutes of Michigan or that they were "grossly discriminatory" or gave undue preference and advantage to any shipper or receiver of freight, and the complaint was dismissed. After stating that the Interstate Commerce Commission and the Michigan Public Utility Commission had uniformly held that it was *not the function of regulatory authority to prevent railroads from meeting competition* of unregulated carriers, the Michigan Commission in its order dismissing the complaint stated: "Any other policy would transform regulation into destruction. *No claim can be made that a rate honestly framed to meet competition is discriminatory. If discrimination exists it is the result of conditions the competitive rate is designed to meet, not of the competitive rate.* Where the competition can be met without loss to the carrier or burden to other shippers only through the establishment of a trainload rate, a presumption is thereby created in favor of such a rate. (Italics supplied.)

"In meeting competition the rail carriers are compelled to deal with bulk movements not involved in competition with land carriers. Boats handle sand and gravel in full cargoes each of which equals or exceeds the volume and weight of material carried by a fifteen-car train. A logical and practical way of meeting a bulk rate, so long as no new discrimination is thereby created, is to establish a similar rate. In rail traffic this can mean only a trainload or multiple car rate.[9]

[5] Pere Marquette Railway Tariffs, M.P.U.C. Nos. 387 and 97.

[6] Pere Marquette Railway Tariff, M.P.U.C. No. 2639.

[7] Michigan Central Railroad Tariff, M.P.U.C. No. 1865, Supplement No. 52.

[8] Detroit, Toledo and Ironton Railroad Tariff, M.P.U.C. No. 363.

[9] Order D-2945, Michigan Public Utilities Commission.

Manually Controlled Power Gate Installation at Kentucky Street in Louisville

Automatic Crossing Gates on the Louisville & Nashville

Road has six years' experience with straight automatic, manual and auto-manual control of power-operated gates; 16 crossings now equipped

THE manually-operated crossing gate has been used extensively on the Louisville & Nashville, as well as on other railroads for the protection of highway-railroad crossings for many years. However, the development of improved power-operated gates has enabled the road to provide gate protection at reduced cost by the use of automatic control, by manual control for a group of crossings, or by a combination of these two means of control. Furthermore, these newer power-operated gates have overcome many of the objectionable features of the older types of manually-operated gates.

Methods of Improving Gate Protection

To overcome the difficulty with vehicle drivers running into the arms and breaking them off, a loud-sounding crossing bell was provided, so controlled as to sound an advance warning for several seconds. Furthermore, two red lamps, lighted electrically, were installed on each gate arm, these lamps being lighted as soon as the gate arm starts to lower, and continuing until it is again raised.

Also, the new power-operated gates are lowered at a uniform and comparatively slow rate of speed, requiring about 15 sec. for this movement, thus giving sufficient time for approaching drivers to stop, as well as time for those on the crossing to proceed into the clear. Furthermore, the new gates are so designed that the arm can swing in the horizontal plane away from the track, thus enabling a vehicle trapped on the crossing to force it around and escape damage. As a further precaution, where local conditions permit, the gates are being located from 15 to 20 ft. from the nearest rail to enable an ordinary automobile to clear the tracks without encountering the gates.

In certain congested territories, the Louisville & Nashville had long employed manually-operated gates at several consecutive crossings, some of which were operated throughout the 24 hr. and others part-time. For example, the double-track line through the manufacturing district of Louisville, handling 14 passenger and 16 freight trains, as well as numerous switching moves daily, crosses within a short distance Oak, Mary, St. Catherine and Kentucky streets. To provide full-time protection of a uniform character at all of these crossings and to reduce operating expenses, the manually-operated gates at the two most remote crossings, Oak and Kentucky streets, were replaced with power-operated hydraulic gates, while the old gates were retained at the two other streets, a power-operated air compressor for the operation of the gates at these latter crossings being provided in a new control tower midway between Mary and St. Catherine streets.

Automatic track-circuit control for the hydraulic gates is in effect for through train movements at Oak and Kentucky streets. However, to protect the crossings for switching movements on sidings and house tracks, as well as to permit the raising of the gates when cars are left standing on the main line during switching operations, the man in charge of the control machine can take charge of the operation of the gates at Oak and Kentucky streets.

The control machine consists of a cabinet including four enclosed-type switches, each of which is operated by a handle which normally stands at the right position and is thrown to the left to lower the gates at the corresponding crossing. If cars are left standing on a main track or a move is being made which will not go over a crossing, the towerman can raise the gates at that crossing by pushing the button above the corresponding lever. Annunciators are provided to warn the towerman of the approach of trains, as well as to let him know when the rear of a train clears a crossing,

so that he can raise the gates if conditions otherwise permit him to do so. As these are all rather wide paved streets, four gates are used at each crossing. As auxiliary protection, standard A.A.R. flashing-light signals, with bells, are in service at each of these crossings.

The changeover at these four streets permitted nine gatemen to be transferred elsewhere, and resulted in a saving in operating expense of some $6,500 annually. The centralized control system for the gates at these four crossings has now been in service four years, during which time no accidents involving personal injuries have occurred.

Track Circuit and Interlocking Lever Control

Another installation of gates in Louisville was at the New Main Street crossing of a double-track connecting leg or wye, used by C. & O. trains, as well as by L. & N. switching movements, at which point pneumatic gates, controlled manually by a gateman, were in 24-hr. service. This street carries heavy local and through traffic, including street cars, trucks, automobiles and horse-drawn vehicles. The arms of these gates were broken on an average of one arm every two or three weeks. In 1931, these pneumatic gates were replaced with electro-hydraulic gates which are normally controlled automatically by track circuits, with special control by the leverman in the tower of an interlocking plant located about 310 ft. from the crossing. When a route is lined up through the interlocking for a train which is to pass over the New Main Street crossing, the pulling of the home signal lever causes the gates to be lowered, after which the home signal clears. Advance warning is given vehicle drivers by means of a bell, flashing-light signals and lights on the gates, which are lowered slowly, and these warnings have proved effective, for while the breakage of gate arms has not been entirely eliminated, it has been reduced to one or two cases per year. The changeover cost $3,875 and effects an annual saving in operating expense of some $2,000.

Automatic With Part-Time Manual Control

At Anchorage, Ky., 13 miles from Louisville, and the junction of single-track main line to Lexington, Ky., with the double-track Louisville-Cincinnati line, flashing-light signals had been in service at Bellewood, Evergreen, Graytower and Depot avenues south of the junction, and at Johnson avenue on the Cincinnati line and also on the Lexington line. The Cincinnati line handles about 30 L. & N. trains daily, while about 18 C. & O. and L. & N. trains are operated over the Lexington line.

In 1934, arrangements were made to close the Depot Avenue crossing and to replace the flashing-light signals at the five remaining crossings with electro-hydraulic power-operated gates. The gates at Bellewood, Evergreen and Graytower avenues are controlled automatically full time, although the Graytower Avenue gates can be controlled manually during switching movements by the leverman in an interlocking tower located at the junction 600 ft. away. The gates at the two crossings on Johnson avenue are controlled manually all of the time by the leverman in the tower.

The total cost of the gate installations at the five crossings was about $10,000, the installations being made by the city of Anchorage as a PWA project, although engineering, supervision and inspection were contributed by the L. & N. Since the installation was placed in service on August 7, 1934, no accidents have occurred at these crossings.

Still another installation is located at Cynthiana, Ky., a town of 4,000 inhabitants, 60 miles south of Cincinnati, Ohio, on the double-track main line to Atlanta, Ga. In this city there are two important crossings, Pike street, which handles local traffic, and Falmouth Pike, which carried heavy local as well as through motor traffic. This line handles 8 passenger, 6 scheduled freight and 10 extra trains daily. Under the previous arrangement an automatically-controlled wig-wag was in service at each crossing and, in addition, a watchman was on duty two tricks daily at each crossing. On account of the increasing volume of highway traffic, it was decided that more effective and uniform protection throughout the 24-hr. period was desirable. Power-operated gates, controlled automatically, were, therefore, installed at these two crossings. Since the way freight does considerable switching in the vicinity of Pike street, provision was made for a watchman at an adjacent street to take over manual control of the gates when necessary while the switching is being done. This changeover in protection effected an annual saving in operating expense of $2,100.

Automatic Control With Automatic Provision for Switching

At an important crossing at Reservoir Park boulevard in the eastern residential section of Louisville, pneumatic gates, operated by one man on duty each trick, had been in service for six years, supplementing

Automatically-Controlled Crossing Gate Installation at Hillcrest Avenue

a wig-wag and bell, controlled by track circuits. As this crossing is on a section of double track on the route between Louisville and Cincinnati, over which Chesapeake & Ohio trains are also operated, the traffic includes 18 passenger and 30 freight trains daily. In May, 1930, the protective devices at this crossing were replaced with hydraulic gates controlled automatically by track circuits, thus effecting an annual saving in operating expense of $1,800 annually.

At infrequent intervals, possibly two or three times a week, a switching train sets out or picks up cars from coal yards or other industry tracks, during which operation cars are sometimes left standing on one of the main tracks for 10 or 15 min. As it would be impracticable to allow the gates to remain down for this length of time, a special arrangement has been devised whereby if the gates are down for three minutes, because of cars standing on one of the approach control track circuits, the gates are then raised, providing no train is approaching on the other track. When the switching operation is completed, and the train approaches within 500 ft. of the crossing, a restarter device causes the gates to be lowered again.

On this installation, as well as at other automatically-controlled gate locations, the track circuits are arranged so that the fastest trains operated in the territory will cause the preliminary warning to operate and the gates to start to lower about 30 sec. before the arrival of the train at the crossing, so that the gates are fully down across the highway about 15 sec. in advance of the arrival of the train.

Fully Automatic Control

These installations of power-operated gates cited above were all made to replace older types of gates or other forms of protection. However, in 1935, a case arose at Braden, Tenn., where a newly paved highway, creating a through motor route, increased the vehicular traffic over a crossing with the single-track main line of the L. & N. between Louisville and Memphis, Tenn., which carried 6 passenger and from 8 to 10 freight trains daily. No form of automatic protection had been required at this crossing previously. However, in consideration of the unusually heavy highway traffic and local conditions as to view at the crossing, it was decided that power gates should be installed. These gates are on straight automatic control by track circuits set up by approaching trains. This installation was made as an PWA project, without expense to the railroad.

Types of Mechanisms Used

The power-operated gates installed on the L. & N. in the years 1930 to 1935, inclusive, are of the hydraulic type, each gate arm being operated by a mechanism involving a cylinder in which there is a piston, with a connecting rod extending to a crank on the shaft on which the gate arm is pivoted. Oil is pumped into the cylinder to operate the gate from the raised to the lowered position and when the pressure is released, the gate arm is raised by force of gravity due to the counterweights on the short end of the arm. The cylinders of the gate mechanism at one crossing are all pipe-connected to one pump or series of pumps driven by an electric motor, which operates on direct current supplied from a storage battery so as to be independent of an outage of commercial a-c. supplies.

More recently a power-operated gate has been developed in which a separate motor and pump, together with a vane-type operating mechanism is provided in the housing of each individual gate post. This new type of mechanism was incorporated in an installation of automatically-controlled gates at Hillcrest avenue in Louisville, about two blocks west of the gates at Reservoir Park avenue, the automatic control arrangement being quite similar in the two layouts. The Hillcrest Avenue installation was placed in service on January 17.

Maintenance of Gates

The installation and maintenance of automatic and auto-manual control gates on the Louisville & Nashville is handled by the signal forces. No special men are provided for the maintenance of the gates, for the signal maintainers, when making their regular rounds, observe the operation of the gates, lubricate the bearings and check the oil levels, electrical connections, lamps, condition of the batteries, etc., the same as with other interlocking and signaling apparatus.

In the vicinity of Louisville, the maintainers' sections are comparatively short so that the men are readily located in case of trouble on the gates. However, this arrangement is not considered essential, for the maintainer in charge of the gates at the two crossings in Cynthiana is located 8 miles away, and the man who maintains the gates at Braden, Tenn., is located 40 miles away. Records over a period of years show that charges for repair parts and all other operating and maintenance work average about $30 monthly per crossing equipped with power-operated gates.

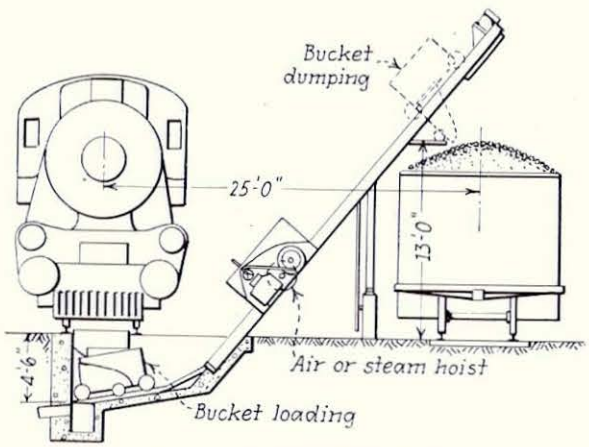
To date, no accidents involving personal injuries or death have occurred at any of the crossings equipped with power-operated gates, while comparatively few gates have been broken. So far as reliability is concerned, that portion of the control having to do with the track circuits, interlocking, relays, etc., is of the same construction as on automatic crossing signals. The failure of a track circuit or a broken control wire results in the gates being lowered across the highway. However, such failures are rare. On some of the installations of gates, trouble was encountered in the failure of the gate mechanisms due to lack of experience in installation or maintenance and to defects in design of the apparatus. These troubles have been overcome to a large extent, and gate performance is now considered by the L. & N. to be generally satisfactory.

Develops Air-Operated Cinder Plant

THE Ross & White Company, Chicago, has developed a new cinder-handling plant that is designed for installation with a minimum outlay and for operation by an air motor from an air-hose connection to the locomotive or from a yard train-charging line. In this device the cinders are discharged directly from the locomotive into a 40-cu. ft. bucket situated in a pit under the track, and which is elevated on inclined guides to a position over the adjacent track where the cinders are dumped into the ash car. A ½-in. round cable attached to the bucket extends through sheaves at the top of the inclined structure and winds on the drum of a Dake air hoist, which is mounted on the side of the structure. To prevent overwinding, the hoist is provided with an automatic feature for stopping the bucket at the filling and discharge points. If desired, steam from the locomotive may be used to operate the motor in the hoist.

The bucket is provided with four flanged rollers that operate on the top flanges of two 10-in., 15.3-lb. chan-

nel guides which form the principal members in the inclined structure. The bottom of the bucket serves as a dump apron. It is hinged at the rear end and is provided near the front or upper end with a pair of flanged rollers that operate on angle guides fastened to the 10-in. channels. At the proper point these guide angles are bent to the horizontal so that, while the bucket continues on the inclined channel guides, the rollers supporting the bottom follow the angles, causing the bottom to drop



Sketch of the New Cinder Plant

down, discharging the load. Side plates on the bottom, which fit over the outside of the bucket when the bottom is in the closed position, prevent the scattering of the cinders as they leave the bucket.

The channels forming the guides, which are inclined at an angle of 45 deg. with the horizontal, are provided with the necessary cross-bracing and are supported by a bent consisting of 6-in. channels bearing on concrete footings. The hopper under the loading track is lined with concrete and is provided with a drained sump. Copper bearing steel plates protect the upper edges of the concrete lining in the hopper from contact with the cinders.

Is Safety Adequately Considered as Speeds Increase?

By W. J. Patterson*

IN railroad development at the present time possibly too much attention is being devoted to *speed* and too little to *safety*. Speed we are certainly getting, both high maximum speed and relatively high speed sustained for long distances, both of which contribute to fast train schedules. In recent months, following record-breaking runs, hours have been clipped off from many train schedules. Time of some of the already fast trains between New York and Chicago has been reduced, and still further reduction is mentioned as probable in the near future. There has been keen competition in schedule reductions between Chicago and several other points, the Twin Cities, St. Louis, Denver and Pacific coast points. The question of speed has been played up prominently in the press, magazines, movies and over the radio, and great popular interest has been aroused.

But what of safety? Speed is desirable only when accompanied by a high degree of safety. The railroads, with the assistance and active co-operation of the government, have established high standards of safety which they can ill afford to jeopardize or impair; maintenance of these high standards, and continuance of the enviable safety records of the past few years, should be prerequisites to the adoption of any innovations in equipment or practice.

Brakes More Important That Motive Power

One of the first and most fundamental of all safety considerations is ability to stop in reasonable time and distance. From the standpoint of safety, brakes are far more important than motive power. With increase in speed, there are two alternatives; either stopping distances must likewise be increased or stopping appliance must be made more effective. There are many factors which must be considered in connection with stopping a train, such as permissible brake shoe pressure, wheel temperatures, variations in adhesion of wheels to rails, possibility of damage to equipment and lading, and safety and comfort of passengers. I am not by any means convinced that stopping appliances have reached their ultimate development, but as a practical matter some of the controlling limits are already approached with standard, conventional equipment, and any increase in operating speed requires increased stopping distance.

It is entirely practicable to provide increased stopping distances for normal operating conditions. Signals can be spaced farther apart, or additional indications can be provided so as to space trains farther apart and give at a greater distance information which will enable an engineman to effect any required reduction in speed at a given point. Likewise the control of grade crossing signals can be lengthened so as to cause the display of crossing signal indications a time interval in advance of the arrival of a fast train at the crossing adequate to protect highway traffic.

At speeds approximating 100 miles an hour signals flash by in rapid succession, and, if fast schedules are to be maintained in storm or fog when the engineman's view of wayside signals is obscured, provision must be made for displaying signal indications in the cab or for automatic control of the train in case an engineman fails to see and overruns a restrictive signal indication without himself taking the required action to control speed. Furthermore, there are many unusual or abnormal conditions which it is impossible fully to guard against and in relation to which high speed introduces elements of increased hazard, such as vehicles stalled on grade crossings or attempting to cross directly ahead of approaching trains, projecting equipment or lading, or equipment derailed, on adjoining tracks, switches opened ahead of approaching trains, and failures of equipment on the high-speed train itself.

It requires fully a mile and a half in which to stop some of our trains today, and that fact is sufficient in itself to demonstrate the utter futility of depending upon merely the vision of the engineman to detect any abnormal condition of the track ahead in time to take effective action to avert an accident.

Another fundamental requisite for safety at high speed is security of the track structure. It needs little exercise of the imagination to appreciate the disastrous results which would follow if one of these high-speed trains encountered a broken rail, or a cocked or damaged switch; even small obstructions on the rails or slight irregularities in surface, alinement and curvature of track affect both safety and comfort at high speed. This calls for proper construction in the first instance and for a high degree of supervision, inspection and maintenance.

I shall touch upon only one other question which ma-

* Director, Bureau of Safety, Interstate Commerce Commission.

terially affects safety of some of our high-speed trains, and that is the ability of new equipment which embodies radical changes in design and employs recently developed materials, to withstand shocks of impact and shearing and tearing forces which may be encountered in case of accident. The modern steel passenger car, a development of many years of practical service, has given an excellent account of itself in safeguarding passengers in many accidents, both collisions and derailments, which have been investigated by the Bureau of Safety. Strength of construction and ability to withstand impact shocks certainly should not be lessened in any degree in equipment which is designed to be run at higher speeds.

Communications and Books . . .

Philadelphia Has Railroad Museum

6832 Wayne Avenue, Philadelphia, Pa.

To the Editor:

I have read with interest T. T. Taber's letter in your issue of July 4, in which he recommends establishing railway museums in various cities. I agree with him and approve of the localities suggested—except that he does not include Philadelphia. As a matter of fact our city is on the list now, as the new Franklin Institute Museum houses a railway exhibit of great interest and value. Among the features of this exhibit are a fine collection of rail sections; the old Reading locomotive Rocket, built in England in 1838; the Baldwin 4-10-2 type, three-cylinder locomotive No. 60,000; and a 4-4-0 which is probably the oldest of its type in existence. The identity of this 4-4-0 has not yet been fully established, but judging from its design the writer believes that it was built by Eastwick and Harrison, of Philadelphia, in the early forties. Other interesting exhibits are to be found in the railway section of the Museum.

Philadelphia, served by three great railroads and the headquarters of The Baldwin Locomotive Works for more than a century, cannot afford to be without a railway museum. All who are interested in railways and have the opportunity will find the exhibit at the Franklin Institute Museum well worth careful study.

Paul T. Warner.

New Books

Industrial America, Its Way of Work and Thought, by Arthur Pound. 234 pages, 9 in. by 6 in. Illustrated. Bound in cloth. Published by Little, Brown & Co., Boston, Mass. Price $2.50.

Each of this book's twelve chapters is a case study of a large American corporation. The individual treatises, prepared by the author with the assistance of the companies selected, were originally published as a series of articles in the Atlantic Monthly, which felt that by thus promoting a "larger public understanding of corporation policies" it was "contributing substantially to economic recovery and to the return of confidence in the basic industries of the country." As brought together in this volume the articles co-ordinate readily into a well-balanced story, since Mr. Pound has in each case concentrated attention on one major aspect of corporate activity.

Treasure Express, by Neill C. Wilson. 322 pages, 8½ in. by 5¾ in. Illustrated. Bound in cloth. Published by the Macmillan Company, New York. Price $2.50.

This book, sub-titled "Epic Days of the Wells Fargo" tells the story of the rise of that enterprise and other express companies in California and the Southwest from the time of the 1848 gold discovery to the "rolling of the last stagecoach," a period of about five decades. It is a fascinating story of the lone expressman, racing steamboats, pony express riders, stagecoaches, and finally the Central Pacific and other railroads—in short, a panoramic picture of brigandage and frontier adventure, with fighting, hold-up, robbery, escape, pursuit, capture and lynching in abundance.

The preparation of the book, says a statement on its jacket, "took the author into about 200 towns in the old Mother Lode and silver country"—many of these towns "now tenanted by ghosts and memories." Also, "many an attic, old trunk or forgotten diary" yielded material, as did the archives of the Wells Fargo Bank. The well-selected illustrations include several full-page pictures as well as line drawings interspersed throughout the text.

Boiler Feed Water Treatment, by F. J. Mathews. 256 pages, 6 in. by 9 in. Bound in cloth. Published by the Chemical Publishing Company, 148 Lafayette street, New York. Price $5.

This is a text book on the principles of water treatment, and while it includes a section on analysis and routine testing and the exposition throughout presumes some knowledge of chemistry, the text matter is designed primarily for the engineer rather than the chemist. The author has endeavored to cover the field as a whole—scale formation, corrosion, and priming and foaming—describing their causes and outlining the various remedial measures applied from the standpoint of their chemical and physical significance. No reference is made to the peculiar problems of the locomotive boiler or to internal or external treatment as applied to railway conditions, the objective being that of presenting the fundamental principles clearly and concisely.

The British Railways, by Alex. Newlands. 134 pages, 8½ in. by 5½ in. Bound in cloth. Published by Longmans, Green & Co., London and New York. Price $3.25.

The author, who is former chief engineer of the London, Midland & Scottish, describes this book as "in the main, an attempt to dissect and analyze the cost of operating the British railways for one year by the use of a common denominator, and to correlate such cost with the volume of work done and the revenue earned." The figures used in this analysis are those of the Ministry of Transport railway returns for 1933, but before proceeding in that connection Mr. Newlands includes introductory chapters on the growth and development of inland transportation and the government and the railways. Also, he closes with a chapter on "Today and Tomorrow," wherein he finds that the railways "are not standing still," and predicts that progress in the railway field "may yet mean not merely doing things better in the old way of doing them, but in doing them in a new and better way."

Administration of Workmen's Compensation, by Walter F. Dodd. 845 pages, 9¼ in. by 5¾ in. Bound in cloth. Published by the Commonwealth Fund, New York. Price $4.50.

This book analyzes the various types of statutory provisions in workmen's compensation laws, indicates the administrative problems presented by such provisions, and discusses comparatively the methods employed in dealing with these problems. The investigation upon which it is based was started six years ago at the Yale University Law School where the author, a member of the Chicago Bar, was professor of law. The findings have been supplemented and interpreted by extensive use of literature dealing with the subject which has appeared in the course of the past quarter century during which workmen's compensation has become an essential part of our economic and legal organization. Particular attention is paid to the study of conditions that existed before the beginning of the depression, and to the tracing of the effect of the depression upon compensation administration. The study takes into account the important changes in compensation laws in the various states, new developments in administrative practice, and notable court decisions, to January, 1936.

Odds and Ends . . .

High Bridge

The long training in grabbing car numbers undoubtedly is an aid in counting trumps, as evidenced by L. E. Shurlds, yard clerk for the Illinois Central at Memphis, Tenn., who succeeded in winning the national championship for pairs in the recent world bridge Olympic for 1936.

Brakemen-Governors

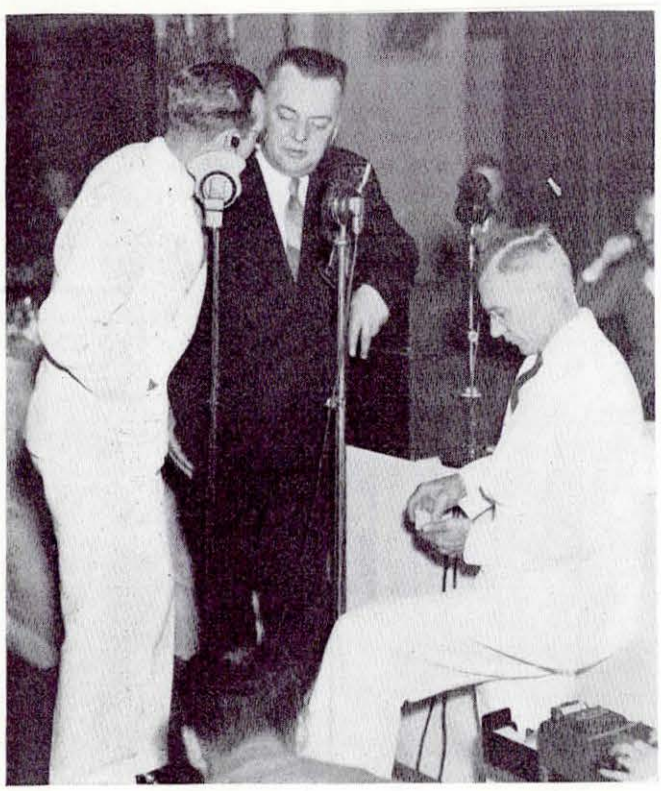
Many years ago Edwin C. Johnson and Leslie A. Miller were boomer brakemen, working on several of the Colorado roads, and they were buddies besides, for, whenever one of them pulled up stakes and went to another road, the other soon followed. Their careers have paralleled since, too, for Johnson is now governor of Colorado, and Miller is governor of Wyoming.

Amateurs

More than one railroader has appeared on the famous amateur hour conducted by Major Bowes. The latest to appear, on July 19, is Irving Chandler, who is a stenographer in the office of President J. J. Pelley of the Association of American Railroads. Irving is a lyric tenor of considerable promise and drew a large share of applause and votes.

New President

E. H. McReynolds, in charge of advertising and public relations for the Missouri Pacific, has just been elected president of



McReynolds on the Spot

the Advertising Federation of America. The accompanying illustration shows the new president (center) being grilled by radio's eminent question-askers, Jerry Belcher and Parks Johnson.

Service Records

Mention has been made of many officers' service records, but until now none of records of service to officers. Henry F. Daniels, of the Chicago, Milwaukee, St. Paul & Pacific, has just completed 50 years' service as waiter and cook on the presidents' business cars. He has served five presidents of the Milwaukee. Daniels is famous for his apple pie and one wonders if he has ever served it to President Daniel Willard of the Baltimore & Ohio, who is fond of apple pie and recently gave his favorite recipe for this succulent dish to the world.

Bargain Hunters

The accompanying illustration shows the first purchasers of the new low rate tickets on the Eastern lines. This group of high school students in Baltimore parked in front of the ticket

The First to Take Advantage of the New Low Rates

window at Mount Royal station of the Baltimore & Ohio and bought tickets promptly at 12:01 a.m. on June 1, starting their journey 14 minutes later.

Railway Mayors

The Norfolk & Western has proved that A. S. Reed, engineman for the Atchison, Topeka & Santa Fe, and mayor of Greenville, Tex., is not the railwayman-mayor of the largest city. As against Greenville's 12,000 population, the N. & W. produces Roanoke, Va., with 75,000 whose mayor is Sydney F. Small, also vice-president of the N. & W.

Dual Long Service

H. E. Williamson, engineman for the Long Island, who retires from railway service this month with a record of 50 years' faithful service, also has a record of 50 years' service elsewhere. For the past half century, Williamson has been a Sunday school teacher and he plans to continue his class at the Methodist Episcopal church at Hampstead, L. I. For the past ten years, he has also served as preacher from time to time at various Long Island churches, and he plans to continue this activity, too, after retirement.

Railroad Roses

The rambler roses of the New York, New Haven & Hartford are again in bloom and offering travelers a beautiful sight. The flowers, which are of the Dorothy Perkins variety, were originally planted in a deep cut at Mount Vernon, N. Y., in 1909, at a cost of $5,000. Since that time, cuttings and transplantings have been made every year and there are now more than 57,000 rose bushes along the New Haven, in four states. One stretch of 41 miles between New York and South Norwalk is practically solid with roses, which are so thick in spots as to give the effect of a pink carpet. Although the primary motive behind the original planting was aesthetic, the roses have served a utilitarian purpose also, as it is found that the roots of the bushes retard soil erosion materially.

NEWS

Chicago Hearing on C. & D. Tariffs of Eastern Roads

Experience of the western lines with storedoor service is revealed in evidence presented

Twelve Class I railroads in Illinois increased their l.c.l. freight business 47,903 tons in May, 1936, as compared with the same period last year, through the use of pickup and delivery service, according to L. W. Wettling, statistician for the western lines, testifying at a hearing before Examiner Archer of the Interstate Commerce Commission, on official territory pickup and delivery service conducted at Chicago, July 21 to 24. The increased revenue, according to Mr. Wettling, amounted to $483,634. The Illinois roads were the Atchison, Topeka & Santa Fe; the Chicago & North Western; the Chicago Great Western; the Chicago, Burlington & Quincy; the Chicago, Milwaukee, St. Paul & Pacific; the Chicago, Rock Island & Pacific; the Missouri Pacific; the Toledo, Peoria & Western; the Illinois Central; the Illinois Terminal; the Louisville & Nashville and the Mobile & Ohio. Their combined tonnage of 454,002 produced revenues of $4,889,137, compared with 406,679 tons and $4,405,503 in May, 1935.

George Jeck, of the commerce department of the Chicago, Burlington & Quincy, introduced figures to show that of the $92,507 increase in this company's l.c.l. revenue for May over last year, $32,688 remained after the payment of $59,818 cost of drayage. Mr. Jeck also testified that carload tonnage decreased constantly from 1929 through 1933, while l.c.l. tonnage decreased from 1929 through 1935. In the first five months of 1936, however, with pickup and delivery service, the road's l.c.l. traffic gained 9,898 tons over the same period of 1935 and revenues increased $118,796.

P. H. Coon, assistant general freight agent of the Missouri Pacific, introduced exhibits to show that the road's l.c.l. tonnage in the first five months of 1936 was 13,892 tons above the same period of 1935. The average cost of pickup and delivery service on the Missouri Pacific in the period was $155,372 or $1.18 per ton.

Throughout the hearing on the proposal of eastern roads to establish free pickup and delivery service, shippers and railroads favored the service with an allowance for drayage. Opposition to the proposal was made by trucking interests. H. J. Saunders, consulting engineer and analyst, appearing on behalf of the American Trucking Association, introduced a compilation to show the cost to the eastern railroads for hauling l.c.l. traffic. On the basis of these figures the adoption of free pickup and delivery, with its accompanying allowances to shippers and receivers, would result in an annual revenue loss to the eastern roads of $44,398,754. On July 24 the hearing was adjourned to August 5 in Washington.

Keeshin Company Proposes Closer Integration

The Keeshin Motor Express Company, Inc., of Illinois, has applied to the Interstate Commerce Commission for authority to lease the properties and rights of the Keeshin Motor Express Company, Inc., of Indiana, the Keeshin Motor Express Company, Inc., of New York, the Bausman Motor Express, of Pennsylvania, Bernd Trux, Inc., of Wisconsin, the Dickens Motor Freight, Inc., of Michigan, and the Scott Transportation Company, of Oklahoma. It is also proposed to include in the lease plan the National Transportation & Storage Company, of Connecticut, and the Seaboard Freight Lines, Inc., of Connecticut, if the commission approves their acquisition on applications now pending. The applicant company is controlled through ownership of its stock by the Keeshin Transcontinental Freight Lines, Inc.

Eastern Car Foreman's Outing

The fourth annual field day and golf tournament of the Eastern Car Foreman's Association was held on July 23 at the Race Brook Country Club, New Haven, Conn. About 250 members and guests attended the outing which was designated as New Haven Day. The various committees arranged numerous events of sufficient variety so that the majority of those present could participate. These events, of which the golf tournament occupied the interest of a large number, provided entertainment which concluded with a dinner at 7:15 p.m. The winners of most of the events were awarded prizes which were given out at the dinner and at the close a "grand mystery drawing" was held in which many who had not been winners in regular events were the recipients of additional prizes.

J. P. Egan, president of the Eastern Car Foreman's Association, was in charge of the general arrangements for the outing, assisted by F. H. Becherer, general chairman; A. E. Calkins and R. Sonquist, vice chairmen, and eleven committee chairmen.

Asks Foot-Warmers and Arm Chairs for Brakemen

Whitney seeks "proper and adequate" seating facilities for those riding head end

Now that the Pullman surcharge has been abolished and passengers are being furnished with better seating and other facilities at lower rates, the railroad brakemen are demanding better service also and some of the facilities of the driver of the private automobile with which the railroads, or at least the Interstate Commerce Commissioners, are trying to compete.

A. F. Whitney, president of the Brotherhood of Railroad Trainmen, has filed with the Interstate Commerce Commission a complaint asking it, as a safety measure, to require the railroads to equip their locomotives with "proper and adequate" seating facilities for all members of train crews who are required to ride upon locomotives or the head ends of trains. These seating facilities are to be equipped with spring cushions and spring cushion back rests, foot warmers, and padded arm rests, and where there is only one window on the fireman's side of the cab the commission is asked to require two windows, one for the forward brakeman and one for the fireman. In addition the commission is asked to require that hot steam pipes on the right side of the engine boiler be removed and placed back of the locomotive boiler head so as to prevent injury to employees from burns.

The present seating arrangement for head brakemen, the complaint says, "endangers the health, comfort, and general welfare of trainmen by unduly exposing them to extreme weather conditions, unnecessary danger and hazard in the event of an explosion in the firebox," and it is also said to endanger travelers upon the highways by rendering trainmen incapable of keeping an effective lookout, although in a proceeding now pending before the commission on a complaint of the enginemen's brotherhoods the firemen ask to be relieved of firing by the installation of automatic stokers so that they may keep a steady lookout.

Carmody Joins Rural Electrification Administration

John M. Carmody, a member of the National Labor Relations Board and a former member of the National Mediation Board, has been appointed deputy administrator of the Rural Electrification Administration.

Railroads Initiate Action to Keep Emergency Rates

Petition asks I. C. C. to clear way for bringing freight surcharges into permanent structure

The railroads, in a petition filed July 27, asked the Interstate Commerce Commission to clear away certain technical procedural steps so that the carriers can file, at a minimum of expense and delay, tariffs translating into permanent rates, subject to suspension and investigation by the commission, the emergency freight charges which will expire on December 31. In their petition the railroads pointed out that there is no intention of publishing rates which will be in excess of the emergency charges now in effect and which were allowed by the commission to enable the carriers to meet in part increases in their operating expenses due to the increases in the level of railroad wages and in the unit prices of materials and supplies.

"Your petitioners," the brief said, "propose to translate the present emergency charges generally into so-called permanent rates because, based on their judgment and experience, they believe that the increased rates will be just and reasonable, that industry and traffic can bear them without harm, and that their application has not and will not result in any material loss of traffic.

"Your petitioners desire and need relief from the Commission's tariff rules to enable the publication of the rates in an expeditious and economical manner. To translate the present emergency charges into regular tariffs without such relief would require the re-issuing and publication of nearly all of the tariffs applicable in the United States, at an enormous expense. The present emergency charges can be translated into the regular tariffs by supplementing most of the tariffs by the use of a conversion table which will definitely and precisely show the amount of each and every revised rate."

The petition does not ask the commission at this time to approve such permanent changes but merely to enter a general order modifying all of its outstanding orders of whatever kind and description so as to enable the railroads to publish and file tariffs placing the emergency rates on a permanent basis with the understanding that the tariffs will be subject to suspension and investigation.

Attention was called to the fact that, on June 9, in continuing in effect the emergency charges until December 31, the commission in its report and order said:

> It does not, of course, follow from what has been said that applicants are debarred from attempting to translate any of the present charges into what may be termed permanent rates. That is a matter which we shall leave initially to their judgment, but any rates filed by them incorporating the emergency charges on a permanent basis will be subject to suspension and investigation by us if need therefor appears.

"Since this supplemental report of the commission," the petition added, "was promulgated petitioners have given serious and thoughtful consideration to the existing situation, and have reached the conclusion that in order to conserve revenues and to continue in the public interest to furnish adequate and efficient transportation it is necessary for them to publish and file with the commission tariffs translating the present emergency charges into permanent rates.

"The great preponderance of the traffic throughout the United States on which the present emergency charges apply moves on rates which are the subject of outstanding orders of the commission in the main maximum rate orders. It would be impracticable, if not impossible, to enumerate all of the cases in connection with which such outstanding orders apply. Certainly such an enumeration, if possible of accomplishment, would serve no useful purpose. It would require many months' work and entail tremendous expense. It is for this reason that petitioners ask for a general modification of all outstanding orders to the extent necessary to enable them lawfully to publish and file tariffs translating the present emergency charges into permanent rates. Such a modification of said orders by the commission will simply enable the carriers to publish and file the tariffs; the rates will be subject, of course, to protest and suspension."

Railroad Fares Raised in New York City

The New York, Westchester & Boston, 30-mile suburban line, has been authorized by the New York State Transit Commission to increase from 7 cents to 10 cents its single fares between stations in New York City; and 12 tickets will be sold for one dollar. The company has 11 stations within the city limits.

Correction

In an article in the *Railway Age* of July 25, page 141, a statement was made that 1,500 employees had been added to the forces of the Westinghouse Air Brake Company of Wilmerding, Pa., and the Union Switch & Signal Company of Swissvale, Pa., since June 30, 1936. A mistake was made in the year; it should have read since June 30, 1935.

Passenger Pickup and Delivery Increases Revenue

The passenger pickup and delivery service which the Cedar Rapids & Iowa City Railway, an electric interurban line operating between these cities, placed in service a few months ago, combined with a fare reduction, has increased its passenger traffic revenue nearly 25 per cent, according to C. E. Ingersoll, traffic manager. The company has made arrangements for taxi pickup and delivery at both terminal cities for 10 cents a person and coincident with the establishment of this service has reduced its fares 35 per cent. During the few months in which this service has been in effect nearly every person traveling by the interurban from Cedar Rapids to Iowa City used a taxi, while at Cedar Rapids the service was used slightly less, many passengers being shoppers whose destinations are only a few blocks from the interurban station.

Canadian Pacific Receives First Jubilee Locomotive

Colorful ceremony marks delivery of semi-streamlined 4-4-4—first of five high-speed units

In a formal and colorful ceremony the first of five semi-streamlined locomotives for high-speed passenger service was delivered by W. C. Dickerman, president of the Montreal Locomotive Works, Ltd., to Sir Edward Beatty, chairman and president of Canadian Pacific at the plant of the builders, Montreal, Que., on Monday, June 27.

The locomotive is to be known as the Jubilee type, in celebration of the fiftieth anniversary year of the establishment of transcontinental passenger service by the Canadian Pacific. It is of the 4-4-4 type. The boiler carries a working pressure of 300 lb. per sq. in.; the cylinders are 17¼ in. by 28 in.; the driving wheels, 80 in. in diameter, and the tractive force, 26,500 lb. The total weight of the engine is 263,000 lb.

The ceremonies were broadcast through the facilities of the Canadian Pacific Communications department on a coast-to-coast network. The broadcast began in the erecting shop, from where the characteristic sounds of the shop were carried over the radio; it included brief reminiscences of the motive power of earlier days by J. N. Burke, a retired engineman, whose service began in 1884. Addresses were then made by Mayor Camillien Houde of Montreal, Mr. Dickerman and Sir Edward Beatty, before a party of guests, including officers and directors of the railway and the builders, at a stand outside the shop.

At the conclusion of Sir Edward Beatty's address, formally accepting the new locomotive, amidst the blowing of whistles it burst through a light canvas barrier in the end of the shop, on which was a painting of Locomotive No. 371 of fifty years ago emerging from a tunnel, and proceeded out of the shop under its own steam, to be stationed near the speakers' stand for the inspection of the guests.

In his address, Mayor Houde referred to the effects of highway and air competition on the railways and said, "However, the new equipment is here now. It will be more and more generally used as time goes on. The threat of competition from the bus and the aeroplane has not been destroyed—it is not desirable that it should be destroyed—but the race is at last upon more even terms."

Mr. Dickerman referred to the wide effect of the recent orders of the Canadian Pacific and the Canadian National Railways as a part of a work relief program. "From a work relief standpoint," he said, "there are few if any items bought anywhere which offer anything like the same opportunity for such a wide distribution of employment so quickly obtained as an order for locomotives. It means much, very much more than just work for the locomotive builder."

"The Jubilee type," said Sir Edward Beatty, "marks a reversion to the use of

lighter locomotives for passenger service. For use with these locomotives our company is constructing cars of light weight. These light-weight trains will provide a greater degree of comfort without any sacrifice in safety for passengers than at any time in the past and in striking contrast to the trains of 50 years ago, or 34 years ago, when the Montreal Locomotive Works was first established in Montreal."

I.C.C. Inquires into Occupancy of Railroad Facilities by Forwarders

The Interstate Commerce Commission has addressed to all Class I railroads a questionnaire on which they are required to furnish detailed information to its Bureau of Inquiry as to the occupancy of railroad facilities by freight forwarders and the rentals paid for such facilities by the forwarders.

Standee Sues New York Central

Suit to recover $45 damages and a $2.80 fare refund from the New York Central was filed last week in the New York City Municipal Court by a New York attorney who alleges that he was forced to stand while riding in a coach from Albany, N. Y., to New York, on July 12. The suit asks the $45 for the complainant's "pain and suffering" and the $2.80 for the cost of the ticket.

Chicago Junction and I. H. B. Have Pick-Up and Delivery

The Chicago Junction Railway and the Indiana Harbor Belt Railroad established free pick-up and delivery service on less than carload freight in the Chicago territory on July 25. The service has been held in abeyance under a suspension order of the Interstate Commerce Commission and when the order was vacated the tariffs were restored as of that date. Local trucking companies are employed to perform the service.

Labor Board Decision in N.E.T. Case

The National Labor Relations Board has issued a decision certifying that the Mechanical Department Association of the New England Transportation Company is the properly-chosen representative of Mechanical department employees of the N.E.T., which is a highway subsidiary of the New York, New Haven & Hartford. In the recent election the Association received 91 votes while the International Association of Machinists received 75, and 12 were contested.

Western Roads Cut Rates to Drouth Areas

Western railroads, through the Western Trunk Line committee, have drawn up tariffs providing for reductions of 33 per cent on hay and 50 per cent on roughage shipped to the drouth stricken areas of the northwest. With the same rates effective on the Northern Pacific, the Great Northern, the Chicago, Milwaukee, St. Paul & Pacific and the Minneapolis, St. Paul & Sault Ste. Marie in Montana, North Dakota and some sections of South Dakota, the action of the trunk line committee will extend the rates to other parts of South Dakota and Wyoming, where they will be offered by all roads serving the western territory. The reductions were asked by officers of the administration's drouth relief program at a meeting at Chicago on July 24.

Hero Medal for C. N. Mathis

Upon recommendation of the Interstate Commerce Commission, President Franklin D. Roosevelt, acting under the law of February 23, 1905, has awarded a bronze medal to Carl N. Mathis, of Wilmington, N. C., a freight conductor on the Atlantic Coast Line. Mr. Mathis, on May 8, 1934, at Chadbourn, N. C., saved the life of a boy of 13 years, riding a bicycle, who, had he not been snatched away by his rescuer, would have been killed while crossing a track in the face of freight cars being switched. Mathis was considerably injured himself, and the boy's bicycle was wrecked by being run over.

H. & M. Subject to Railway Labor Act

The Interstate Commerce Commission has made public a report of Division Three which finds that the Hudson & Manhattan does not fall within the exemption clauses of the Railway Labor Act, which excludes from the provisions of that act interurban and suburban electric railroads. The report found that a carrier which participates in joint rates and joint operations with trunk line railroads to the extent that the Hudson & Manhattan does "is not a mere interurban as that term is used in the exemption proviso."

P.R.R. June Passenger Revenue 6.6 Per Cent Above June, 1935

The Pennsylvania's passenger revenue for June, the first month in which the fare cuts in the East were effective, was 6.6 per cent in excess of June, 1935, according to the road's monthly earnings statement. Freight revenues in June showed an increase of 15.1 per cent as compared with last year; the increase in gross revenues was approximately 14 per cent. In the first five months of 1936 the Pennsylvania's passenger revenues ran approximately 10 per cent ahead of the first five months of 1935 while in May they were 10.6 per cent above May last year.

P. R. R. Sues Commuters Refusing to Pay Full Fares

The Pennsylvania has filed suit in the Federal District Court at Trenton, N. J., to collect from commuters who have been refusing to pay the supplemental charge of 15 cents for travel between Manhattan Transfer, N. J., and Pennsylvania Station, New York. Fares published in the commutation tariffs involved apply only to the Pennsylvania's ferry stations and stations of the Hudson & Manhattan in New York. Several weeks ago a demonstration against the 15-cent charge was launched in the form of refusals by some commuters to pay it.

New Plan for Administration of New Zealand Railways

The Government Railways Board, which since 1931 has exercised jurisdiction over the New Zealand government railways, has been abolished by a recent act of the New Zealand parliament. The act provides for a new set-up whereby the administration of the railways is vested in a general manager under the control of the Minister of Railways.

G. H. Mackley, who was general manager under the previous regime, has been appointed to continue in that office. The 1931 act, which created the board now abolished, was characterized at the time of its passage as a measure designed to bring about non-political control of the railways.

Trains Restored to Handle B. & O. Passenger Business

Increased passenger business resulting from the new low fares has caused the Baltimore & Ohio to restore two trains—one in each direction—between Washington, D. C. and Cincinnati, Ohio, which were discontinued several years ago because of insufficient patronage. The westbound train, No. 23, leaves Washington at 12:15 a.m. and arrives in Cincinnati at 4 p.m. the same day; the eastbound train, No. 24, leaves Cincinnati at 3 p.m. and arrives in Washington at 5:45 a.m. the following morning, when it connects with train No. 10 serving Baltimore, Md., Wilmington, Del., Philadelphia, Pa., and New York. Both trains are air-conditioned throughout.

Status of Grade Crossing Program

Seventy-seven of the grade crossing projects included in the federal government's work program had been completed by June 30, according to a progress report issued by the Bureau of Public Roads, at an estimated cost of $3,234,563, and 1,022 projects, of which the estimated cost was $92,210,762, were under construction, while 805 projects, at an estimated cost of $41,313,257, had been approved for construction. The bureau's compilation is shown in the table on the opposite page.

Landon Notification Boosts Traffic

The notification ceremonies informing Governor Landon of his nomination for President of the United States, held at Topeka, Kan., on July 23, attracted unprecedented crowds.

The railroads serving Topeka, including the Atchison, Topeka & Santa Fe, the Chicago, Rock Island & Pacific, the Missouri Pacific and the Union Pacific, shared in the rush. The Santa Fe and the Rock Island handled the bulk of the trains, the total number of persons carried by each being 8,275 and 5,000 respectively. The Santa Fe operated a total of 193 cars, of which 179 were on 17 special trains and 14 on regular trains. The Rock Island ran eight special trains and many extra cars on regular trains. The bulk of these passengers were carried in coaches, the Pullman Company being required to furnish only 27 extra sleeping cars.

On the Santa Fe six freight yard tracks, in addition to two passenger tracks, were used to accommodate the special trains. Flood lights were installed around the station and tracks. A dispatcher's office was placed in operation at the station and four trainmasters from other territories as-

Current Status of United States Works Program Grade Crossing Projects

(As Provided by the Emergency Relief Appropriation Act of 1935)

AS OF JUNE 30, 1936

State	Apportionment	Completed: Estimated Total Cost	Completed: Works Program Funds	Completed: Number: Grade Crossings Eliminated by Separation or Relocation	Completed: Number: Grade Crossing Structures Reconstructed	Completed: Number: Grade Crossings Protected by Signals or Otherwise	Under Construction: Estimated Total Cost	Under Construction: Works Program Funds	Under Construction: Number: Grade Crossings Eliminated by Separation or Relocation	Under Construction: Number: Grade Crossing Structures Reconstructed	Under Construction: Number: Grade Crossings Protected by Signals or Otherwise	Approved for Construction: Estimated Total Cost	Approved for Construction: Works Program Funds	Approved for Construction: Number: Grade Crossings Eliminated by Separation or Relocation	Approved for Construction: Number: Grade Crossing Structures Reconstructed	Approved for Construction: Number: Grade Crossings Protected by Signals or Otherwise	Balance of Funds Available for New Projects
Alabama	$4,034,617	$9,124	$9,124	1	..	..	$3,175,940	$3,175,940	32	..	..	$649,186	$649,186	7	..	5	$200,367
Arizona	1,256,099	47,412	47,412	1	..	..	994,878	925,734	10	..	..	.....	.....	..	..	..	282,953
Arkansas	3,574,060	344,478	344,210	8	..	..	1,221,787	1,217,822	23	4	..	1,849,214	1,846,228	22	1	3	165,801
California	7,486,362	179,113	173,867	3	2	..	6,427,095	6,188,037	33	5	..	806,253	803,410	16	..	..	321,048
Colorado	2,631,567	168,864	168,864	2	..	..	1,218,052	1,197,052	20	..	..	128,712	128,712	1	..	..	1,136,939
Connecticut	1,712,684	.....	.....	..	..	..	.....	.....	..	..	..	158,451	158,451	1	1	..	1,554,233
Delaware	418,239	.....	.....	..	..	..	.....	.....	..	..	..	143,486	120,000	1	..	..	298,239
Florida	2,827,883	15,489	15,489	..	1	..	1,592,776	1,590,465	15	4	..	490,339	490,339	11	..	..	731,590
Georgia	4,895,949	.....	.....	..	..	..	214,669	214,669	4	..	..	209,578	209,578	4	1	..	4,471,702
Idaho	1,674,479	.....	.....	..	..	..	1,046,976	1,027,849	18	1	..	.....	.....	..	..	..	646,630
Illinois	10,307,184	.....	.....	..	..	..	4,928,578	4,928,578	46	2	..	2,633,406	2,633,406	14	1	..	2,745,200
Indiana	5,111,096	.....	.....	..	..	..	3,502,651	3,380,006	28	7	..	1,941,453	1,702,123	10	3	127	28,967
Iowa	5,600,679	7,303	7,000	..	1	..	2,516,366	2,413,775	51	4	..	2,459,825	2,436,150	44	5	..	743,754
Kansas	5,246,258	.....	.....	..	..	..	3,971,118	3,971,118	37	1	..	1,275,335	1,275,140	16	..	3	.....
Kentucky	3,672,387	15,290	15,290	1	..	..	2,407,425	2,117,693	16	..	..	199,802	199,802	6	2	..	1,339,602
Louisiana	3,213,467	.....	.....	..	..	..	579,848	579,848	5	..	..	1,852,784	1,804,129	16	4	..	829,490
Maine	1,426,861	.....	.....	..	..	..	465,638	465,305	10	..	..	501,018	500,324	8	..	..	461,232
Maryland	2,061,751	.....	.....	..	..	..	414,161	414,161	3	2	..	967,014	944,545	3	2	11	703,045
Massachusetts	4,210,833	.....	.....	..	..	..	1,227,840	1,227,840	8	2	..	385,208	385,208	5	..	..	2,597,784
Michigan	6,765,197	447,400	447,400	3	1	..	5,057,152	5,057,152	32	7	..	606,350	561,850	5	1	..	698,795
Minnesota	5,395,441	154,269	154,269	2	..	1	2,645,661	2,639,611	53	6	4	729,307	729,307	13	3	26	1,872,255
Mississippi	3,241,475	.....	.....	..	..	..	1,930,102	1,930,102	41	3	..	207,952	207,952	4	..	1	1,103,421
Missouri	6,142,153	.....	.....	..	..	..	4,616,091	4,605,451	28	1	..	1,524,391	1,521,763	12	..	..	14,940
Montana	2,722,327	222,343	222,343	3	..	..	2,378,433	2,378,433	33	6	..	.....	.....	..	..	..	121,551
Nebraska	3,556,441	148,501	148,501	3	..	..	1,955,805	1,955,805	62	1	..	1,320,661	1,320,661	11	1	22	131,475
Nevada	887,260	185,753	185,753	4	..	..	497,919	497,919	6	..	..	.....	.....	..	..	..	203,587
New Hampshire	822,484	.....	.....	..	..	..	351,777	351,777	3	3	..	13,154	13,154	..	..	1	457,553
New Jersey	3,983,826	.....	.....	..	..	..	1,024,099	1,024,099	5	2	..	381,836	381,836	3	1	..	2,577,892
New Mexico	1,725,286	203,329	203,329	5	..	..	762,768	762,768	6	1	..	519,778	519,778	4	..	..	239,410
New York	13,577,189	.....	.....	..	..	..	8,906,354	8,645,808	29	27	..	1,491,550	1,491,270	2	9	..	3,440,111
North Carolina	4,823,958	69,554	69,554	..	2	..	1,446,849	1,446,849	20	5	..	685,293	685,293	9	4	..	2,622,262
North Dakota	3,207,473	39,335	39,335	1	..	..	761,541	761,541	18	..	..	899,072	899,072	17	..	..	1,507,525
Ohio	8,439,897	.....	.....	..	..	..	899,207	899,207	5	1	..	2,609,347	2,443,544	19	2	..	5,097,145
Oklahoma	5,004,711	219,766	219,766	5	..	..	1,382,850	1,382,850	26	1	..	1,900,567	1,900,567	23	2	..	1,501,528
Oregon	2,334,204	.....	.....	..	..	..	1,956,186	1,831,474	12	6	..	437,198	437,198	4	..	2	65,531
Pennsylvania	11,483,613	10,836	10,836	3	..	..	3,419,427	3,229,856	26	6	..	2,294,680	2,000,183	13	5	..	6,242,738
Rhode Island	699,691	.....	.....	..	..	..	654,008	654,008	4	1	..	.....	.....	..	..	..	45,683
South Carolina	3,059,956	.....	.....	..	..	..	1,260,469	1,249,503	22	4	..	211,922	211,868	8	1	..	1,598,586
South Dakota	3,249,086	51,774	51,774	1	..	..	854,322	854,322	23	..	..	41,601	41,601	1	..	..	2,301,389
Tennessee	3,903,979	.....	.....	..	..	..	535,673	535,673	12	1	..	441,019	441,019	11	1	11	2,927,287
Texas	10,855,982	235,840	226,386	7	..	..	5,179,734	4,996,144	64	11	..	5,566,129	5,463,758	52	4	83	169,693
Utah	1,230,763	29,757	29,757	..	1	..	609,078	597,024	9	..	..	108,047	100,000	1	..	..	503,982
Vermont	729,857	122,871	122,871	3	2	..	339,140	337,782	4	3	..	59,630	58,666	2	..	7	210,538
Virginia	3,774,287	103,940	103,940	6	..	..	1,259,501	1,188,637	21	2	..	619,167	578,007	20	..	9	1,903,703
Washington	3,095,041	77,705	77,705	1	..	..	1,800,209	1,795,378	15	6	1	583,785	583,785	4	1	6	638,174
West Virginia	2,677,937	.....	.....	..	..	..	276,542	276,542	2	1	..	491,749	491,749	3	..	..	1,909,645
Wisconsin	5,022,683	69,151	69,151	1	..	..	2,752,192	2,752,192	27	5	..	449,314	449,314	3	1	..	1,752,026
Wyoming	1,360,841	55,366	55,365	2	..	..	325,014	325,011	3	..	..	.....	.....	..	..	..	980,465
District of Columbia	410,804	.....	.....	..	..	..	170,643	170,643	2	..	..	253,264	238,616	1	..	..	1,545
Hawaii	453,703	.....	.....	..	..	..	296,218	295,333	3	..	..	215,430	158,369	2	..	..	1
Totals	$196,000,000	$3,234,563	$3,219,291	66	10	1	$92,210,762	$90,464,786	975	142	5	$41,313,257	$40,216,911	432	56	317	$62,099,012

sisted in the train movement. Approximately 125 men from the general offices and other departments acted as information agents. Three switching locomotives were used in the operations and three extra locomotives were held in reserve. A lieutenant and two city officers supplemented by seven militiamen directed automobile traffic at and around the station.

Steam Railway Accident Statistics

The Interstate Commerce Commission's completed statistics of steam railway accidents for the month of April, 1936, now in preparation for the printer, will show:

Item	Month of April		4 months ended with April	
	1936	1935	1936	1935
Number of train accidents	588	482	3,105	2,271
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	199	193	693	689
Injured	223	235	707	838
Passengers on trains:				
(a) In train accidents*				
Killed	2	...	4	...
Injured	26	1	180	239
(b) In train-service accidents				
Killed	...	1	...	6
Injured	126	98	519	478
Travelers not on trains:				
Killed	1	1	7	2
Injured	51	40	267	227
Employees on duty:				
Killed	45	53	237	191
Injured	1,545	1,208	7,089	5,228
All other nontrespassers:†				
Killed	140	154	555	544
Injured	475	439	2,326	2,094
Total—All classes of persons:				
Killed	387	402	1,496	1,432
Injured	2,446	2,021	11,088	9,104

* Train accidents are distinguished from train-service accidents by the fact that the former cause damage of more than $150 to railway property.

† Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties *for all classes of persons, including both trespassers and nontrespassers,* were as follows:

Number of accidents	308	282	1,427	1,307
Persons:				
Killed	127	158	523	522
Injured	365	325	1,717	1,587

April Grade Crossing Accidents

A reduction in the number of fatalities resulting from accidents at highway-railroad grade crossings, but an increase in the number of persons injured and in the number of accidents, was shown by reports for April, compared with the same month in 1935, the Safety Section of the Association of American Railroads announced on July 30.

Fatalities resulting from highway-railroad grade crossing accidents in April totaled 127 compared with 158 in the same month last year or a reduction of 31. Persons injured in such accidents totaled 365 in April, compared with 325 in the same month one year ago or an increase of 40. Reports showed 308 highway-railroad grade crossing accidents in April, compared with 282 one year ago or an increase of 26.

Fatalities from highway-railroad grade crossing accidents totaled 523 in the first four months of the present year compared with 522 in the same period in 1935. Persons injured in such accidents in the same period this year totaled 1,717 compared with 1,587 one year ago. A total of 1,427 grade crossing accidents were reported in the first four months of 1936 compared with 1,307 in the same months last year.

Highway Crossing Signals in New York

The Public Service Commission of the State of New York has denied a request of four railroad companies for an extension of time, within which to carry out an order of the commission calling for changes in automatic electric highway crossing signals. It appears that the order was issued some six years ago, and has already been modified at the request of the railroads, but progress has been slow. The commission says that the plea of the railroads that the financial burden is excessive cannot be allowed; six years is time enough, and the cost of the work is not great.

The applicants were the Delaware, Lackawanna & Western, the Lehigh Valley, the New York, New Haven & Hartford and the Rutland. The changes required, with different dates set for completion, were: reflector signs reading "stop on red signal," to be put on to all automatic signal posts; signs designating the number of tracks; flashing lights made to shine in both directions; all lamps to be hooded and provided with background, and certain details about painting.

The final date for the completion of all changes is January 1, 1937. Two companies have done nothing and three others have attended to only a small fraction of the signals covered by the order.

Heavy Southwest Wheat Crop Moved Without Car Shortage or Delay

Through the co-operative efforts of the railroads, the grain elevators, and flour and feed mills, the carriers have handled this year without car shortage or delay the heaviest crop of wheat from the Southwestern states for any year since 1931, J. J. Pelley, president of the Association of American Railroads, revealed this week. This has been accomplished, Mr. Pelley added, in the face of the fact that during the same time movement of other commodities throughout the United States has been greater than at any time in the past five years.

In the winter wheat states of Nebraska, Kansas, Oklahoma and Texas the crop this year has been approximately 57 per cent above 1935. Due to excessively hot weather in June, the crop matured about two weeks early. This resulted in materially reducing the time allotted Western roads for the accumulation and preparation of car supply to meet the movement. There also was considerable uncertainty as to how fast the crop would be moved when harvested.

Under plans prepared by the Car Service division of the A.A.R., the supply of box cars required to meet the wheat movement was built up on Western railroads by about 2000 cars a week from May 15 to June 30. In order to accomplish this, Eastern and Southern railroads returned weekly a definite number of Western-owned box cars to their home lines in excess of the number which would be returned in the regular course of business. In addition, the Eastern and Southern roads also dispatched to the West a large number of their own box cars suitable for grain loading. To build up the supply further several thousand cars were transferred from the yards of terminal companies at Chicago, St. Louis, Mo., and other Middlewestern points to Western lines serving the winter wheat territory.

The peak movement of the Southwestern winter wheat crop was reached in the first two weeks in July, although traffic is still moving in heavy volume. Because of drought conditions in the spring wheat territory, a light crop in the Northwest is anticipated and no transportation difficulty is expected to develop. With the exception of 1933, loading of grain and grain products in the seven weeks' period including four weeks in June and the first three weeks in July has been heavier this year than in any corresponding period since 1931.

Increased Efficiency in Fuel Consumption

For each pound of coal consumed in freight service, the railroads of the United States in 1935 hauled 8¼ tons a distance of one mile, according to a statement issued this week by J. J. Pelley, president of the Association of American Railroads. This was an increase in fuel efficiency of 44 per cent compared with 1920, in which year an average of 5¾ gross tons was hauled one mile for each pound of coal used.

In the past sixteen years, the statement continues, there has been an almost constant increase in efficiency obtained in fuel consumption, both in freight and passenger service, with a substantial saving in the fuel bill of the railroads. The foregoing is attributed by Mr. Pelley to a large number of factors, including improvements in the construction of new locomotives, modernization of older locomotives by equipping them with up-to-date improvements to aid combustion; improved methods of operation to keep trains moving with a minimum number of stops, and the continuing progress in scientific methods of chemically treating boiler water, in order to eliminate so far as possible ingredients harmful to locomotives. Improvements in scientific methods used to determine just which grades of coal are best adapted for locomotives have also contributed to increased fuel consumption efficiency.

New Equipment on Order

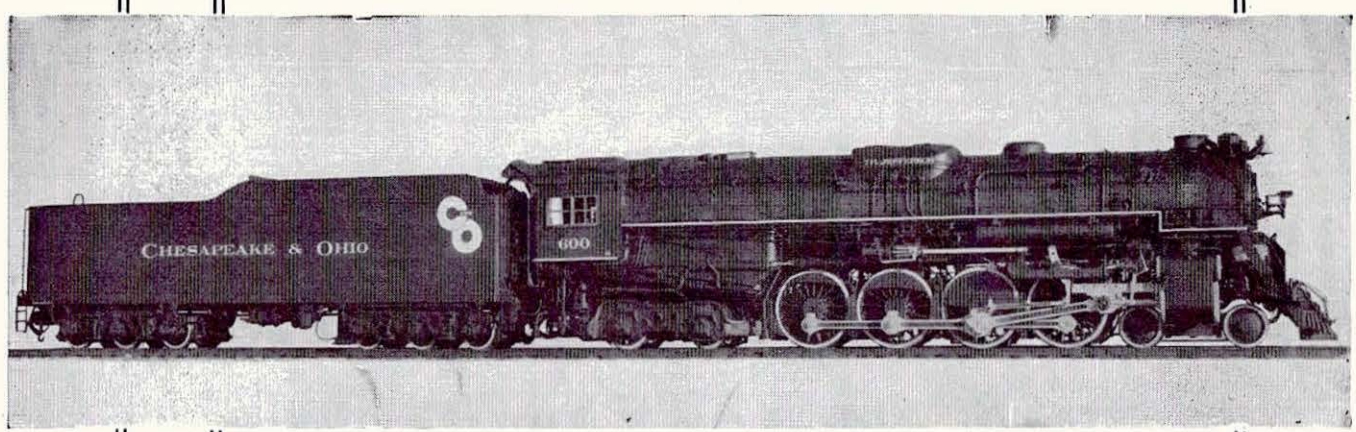
More new freight cars were on order by Class I railroads of the United States on July 1, this year, than on any July 1 since 1929, according to the Association of American Railroads. Orders for new freight equipment on July 1, called for 28,089 cars, compared with 2,428 new freight cars on July 1, 1935, and 17,813 cars on July 1, 1934. On July 1, 1929, equipment orders included 39,638 new freight cars. New freight cars on order on June 1, this year, totaled 25,748.

New locomotives on order July 1, included 67 steam and 23 of the electric and Diesel types, compared with six steam locomotives and 22 electric locomotives on

Continued on next left-hand page

MODERN POWER

Makes Modern Trains Profit Producers



A modern train costs more than twice the cost of the locomotive that hauls it.

Handled by inadequate power it will not attract the public neither will it secure the maximum revenue.

Hauled by a modern locomotive having capacity for smooth handling and high speeds in keeping with the equipment, the entire investment will produce the greatest return.

Modern power increases net profits.

LIMA LOCOMOTIVE WORKS, INCORPORATED
LIMA, OHIO

LIMA
LOCOMOTIVE WORKS
INCORPORATED

order on July 1, 1935; and 40 steam and 107 electric locomotives on order July 1, 1934. New steam locomotives on order on June 1, this year, totaled 58, and new electric and Diesel locomotives 30.

New freight cars placed in service in the first six months this year totaled 11,604, compared with 1,868 in the corresponding period of 1935 and 5,362 in the same period of 1934. Eighteen new steam locomotives and 11 new electric and Diesel locomotives were placed in service in the first half of this year, compared with 25 steam and 81 electrics commissioned in the first six months of 1935, and one steam and eight electrics placed in service the first half of 1934.

Golden Anniversary of Omaha Road

The golden anniversary of the completion of the Chicago, St. Paul, Minneapolis & Omaha through Superior, Wis., to Duluth, Minn., was celebrated on July 25 in conjunction with the annual meeting of veteran employees of that road and the Chicago & North Western. On that day a train of 1886, carrying six men and six women in costumes of that period, pulled into Duluth, where the passengers received the greeting of the mayor. A tallyho, followed by a parade of 800 veterans, carried the main participants to the courthouse, where a square dance and other ceremonies were held. The old-time train and a modern train were exhibited at Duluth on that day and at Superior on the following day.

Transportation Association Elects Vice-Chairman

Mark M. Jones has been elected vice-chairman of the Committee on Transportation Policy of the Transportation Association of America, with headquarters at 270 Park Avenue, New York. This committee will direct that part of the association's research activities devoted to an analysis of present state and federal transportation laws and the determination of a definite program looking toward the adoption of a sound national transportation policy. Mr. Jones has been an industrial traffic manager, a Chamber of Commerce secretary, director of personnel of the Thomas A. Edison Industries and director of an economic staff for John D. Rockefeller, Jr. During the past 10 years he has served various foundations, financial institutions and business corporations on matters of policy, organization and finance. For several years he has given special attention to the finance and credit aspects of the transportation problem in America on behalf of insurance companies and savings banks.

Pneumatic-Tired Rail Cars Tested in Great Britain

The London, Midland & Scottish of Great Britain is experimenting with pneumatic-tired rail motor cars, according to a recent statement from the Associated British Railways, Inc., New York. The cars, with capacity for 56 passengers, have 16 pneumatic-tired wheels. Each is powered with a 275-hp. gasoline engine designed for a cruising speed of 60 m.p.h., with a maximum speed of about 75 m.p.h. The cars are described as "faster and more powerful than any single car units ever tested in Great Britain." Also, they carry new experimental equipment designed to operate signaling track-circuits and fog detonators.

Meetings & Conventions

The following list gives names of secretaries, date of next or regular meetings, and places of meetings:

Air Brake Association.—T. L. Burton, Room 3400, Empire State Bldg., New York, N. Y. Annual meeting, September 15-16, 1936, Hotel Sherman, Chicago, Ill.

Allied Railway Supply Association.—F. W. Venton, Crane Company, 836 S. Michigan Ave., Chicago, Ill. To meet with Air Brake Association, Car Department Officers' Association, International Railway Master Blacksmith's Association, International Railway Fuel Association, International Railway General Foremen's Association, Master Boiler Makers' Association and the Traveling Engineers' Association.

American Association of Freight Traffic Officers.—W. R. Curtis, F. T. R., M. & O. R. R., Chicago, Ill.

American Association of General Baggage Agents.—E. L. Duncan, 816 McCormick Bldg., Chicago, Ill. Annual meeting, October 27-29, 1936, New Orleans, La.

American Association of Passenger Traffic Officers.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York, N. Y.

American Association of Railroad Superintendents.—F. O. Whiteman, Union Station, St. Louis, Mo. Annual meeting, June 15-17, 1937, Chicago, Ill.

American Association of Railway Advertising Agents.—E. A. Abbott, Poole Bros., Inc., 85 W. Harrison St., Chicago, Ill. Annual meeting, January 15-16, 1937.

American Association of Superintendents of Dining Cars.—F. R. Borger, C. I. & L. Ry., 836 S. Federal St., Chicago, Ill. Annual meeting, October 5-8, 1936, Royal York Hotel, Toronto, Ontario.

American Railway Bridge and Building Association.—C. A. Lichty, 319 N. Waller Ave., Chicago, Ill. Annual meeting, October 20-22, 1936, Hotel Stevens, Chicago, Ill. Exhibit by Bridge and Building Supply Men's Association.

American Railway Car Institute.—W. C. Tabbert, 19 Rector St., New York, N. Y.

American Railway Development Association.—R. G. Buford, Asst. Mgr., Industrial Development Dept. M-K-T R. R., Dallas, Tex. Next meeting, October 8-9, 1936, Dearborn, Mich.

American Railway Engineering Association.—Works in co-operation with the Association of American Railroads, Division IV.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 16-18, 1937, Palmer House, Chicago, Ill.

American Railway Magazine Editors' Association.—M. Fenaja, Missouri Pacific Lines Magazine, Missouri Pacific Lines Bldg., St. Louis, Mo.

American Railway Tool Foremen's Association.—G. G. Macina, C. M., St. P. & P. R. R., 11402 Calumet Ave., Chicago, Ill. Annual meeting, September 17-18, 1936, Hotel Sherman, Chicago, Ill.

American Short Line Railroad Association.—R. E. Schindler, Union Trust Bldg., Washington, D. C. Annual meeting, August 24-25, 1936, Brown Palace Hotel, Denver, Col.

American Society of Mechanical Engineers.—C. E. Davies, 29 W. 39th St., New York, N. Y.

Railroad Division.—Marion B. Richardson, 192 E. Cedar St., Livingston, N. J.

American Transit Association.—Guy C. Hecker, 292 Madison Ave., New York, N. Y. Annual meeting, September 21-24, 1936, The Greenbrier Hotel, White Sulphur Springs, W. Va.

American Wood Preservers' Association.—H. L. Dawson, 1427 Eye St., N. W., Washington, D. C. Annual meeting, January 26-28, 1937, New Orleans, La.

Association of American Railroads.—H. J. Forster, Transportation Bldg., Washington, D. C.

Operations and Maintenance Department.—J. M. Symes, Vice-President, Transportation Bldg., Washington, D. C.

Division I.—Operating.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Freight Station Section.—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill.

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Protective Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Safety Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York, N. Y. Next meeting, October 6-8, 1936, Mayflower Hotel, Washington, D. C.

Division II.—Transportation.—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.

Division IV.—Engineering.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 16-18, 1937, Palmer House, Chicago, Ill.

Construction and Maintenance Section.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 16-18, 1937, Palmer House, Chicago, Ill.

Electrical Section.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill.

Signal Section.—R. H. C. Balliet, 30 Vesey St., New York, N. Y.

Division V.—Mechanical.—V. R. Hawthorne, 59 E. Van Buren St., Chicago, Ill.

Division VI.—Purchases and Stores.—W. J. Farrell, 30 Vesey St., New York, N. Y.

Division VII.—Freight Claims.—Lewis Pilcher, 59 E. Van Buren St., Chicago, Ill. Annual meeting, 1937, Toronto, Ontario, Canada.

Division VIII.—Motor Transport.—George M. Campbell, Transportation Bldg., Washington, D. C.

Car-Service Division.—C. A. Buch, Transportation Bldg., Washington, D. C.

Traffic Department.—A. F. Cleveland, Vice-President, Transportation Bldg., Washington, D. C.

Finance, Accounting, Taxation and Valuation Department.—E. H. Bunnell, Vice-President, Transportation Bldg., Washington, D. C.

Accounting Division.—E. R. Ford, Transportation Bldg., Washington, D. C.

Treasury Division.—E. R. Ford, Transportation Bldg., Washington, D. C.

Association of Railway Claim Agents.—F. L. Johnson, Chief Clerk and Claim Agent, General Claims Dept., Alton R. R., 340 W. Harrison St., Chicago, Ill. Annual meeting, May, 1937, Cincinnati, Ohio.

Association of Railway Electrical Engineers.—Jos. A. Andreucetti, C. & N. W. Ry., 1519 Daily News Bldg., 400 W. Madison St., Chicago, Ill. Annual meeting, October 27-29, 1936, Hotel Sherman, Chicago, Ill. Exhibit by Railway Electrical Supply Manufacturers' Association.

Bridge and Building Supply Men's Association.—W. S. Carlisle, National Lead Company, 900 W. 18th St., Chicago, Ill. Meets with American Railway Bridge and Building Association.

Canadian Railway Club.—C. R. Crook, 2271 Wilson Ave., N. D. G., Montreal, Que. Regular meetings, second Monday of each month, except June, July and August, Windsor Hotel, Montreal, Que.

Car Department Officers' Association.—A. S. Sternberg, M. C. B. Belt Ry. of Chicago, 7926 S. Morgan St., Chicago, Ill. Annual meeting, September 15-16, 1936, Hotel Sherman, Chicago, Ill.

Car Foremen's Association of Chicago.—G. K. Oliver, 2514 W. 55th St., Chicago, Ill. Regular meetings, second Monday of each month, except June, July and August, La Salle Hotel, Chicago, Ill.

Car Foremen's Association of St. Louis, Mo.—E. G. Bishop, Illinois Central System, East St. Louis, Ill. Regular meetings, third Tuesday of each month except June, July and August, Hotel Statler, St. Louis, Mo.

Central Railway Club of Buffalo.—Mrs. M. D. Reed, 1817 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, second Thursday of each month except June, July and August, Hotel Statler, Buffalo, N. Y.

International Railway Fuel Association.—T. D. Smith, 1660 Old Colony Bldg., Chicago, Ill. Annual meeting, September 17-18, 1936, Hotel Sherman, Chicago, Ill.

International Railway General Foremen's Association.—Wm. Hall, 1061 W. Wabasha St., Winona, Minn. Annual meeting September 15-16, 1936, Hotel Sherman, Chicago, Ill.

International Railway Master Blacksmiths' Association.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Annual meeting, September 17-18, 1936, Hotel Sherman, Chicago, Ill.

Master Boiler Makers' Association.—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y. Annual meeting, September 16-17, 1936, Hotel Sherman, Chicago, Ill.

National Association of Railroad and Utilities Commissioners.—Clyde S. Bailey, 810 18th St., N. W., Washington, D. C. Annual meeting, November 10-13, 1936, Atlantic City, N. J.

National Railway Appliances Association.—C. H. White (Pres. and Sec'y), Room 1826, 208 S. La Salle St., Chicago, Ill. Exhibit at A. R. E. A. Convention, March 16-18, 1937, The Coliseum, Chicago, Ill.

New England Railroad Club.—W. E. Cade, Jr.,

Continued on next left-hand page

FULL FACED CONTACT

With Unlimited Movement

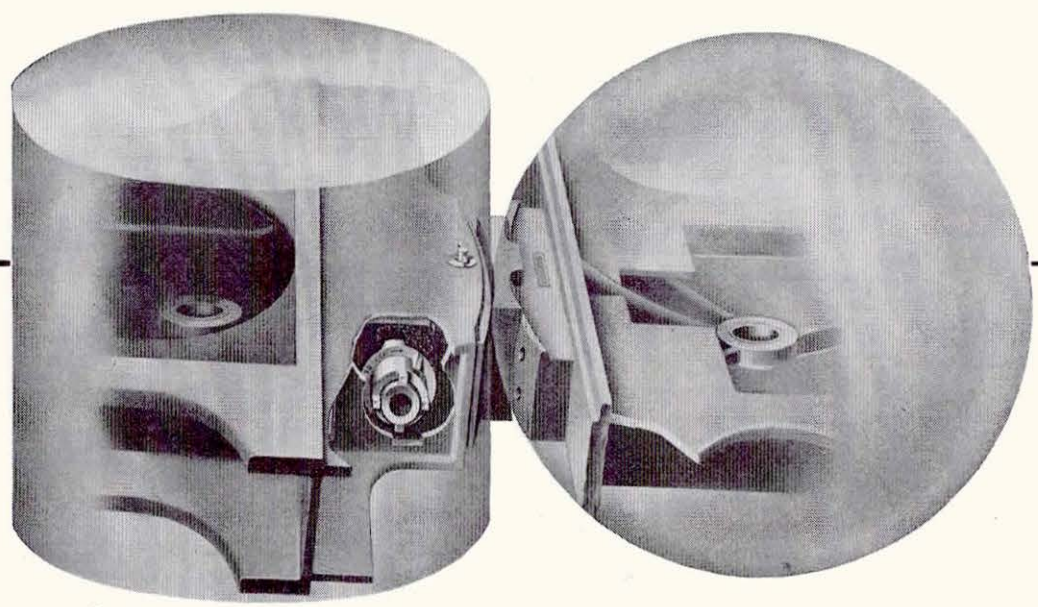
Observe how the Radial Buffer Type E-2 is always in full faced contact, yet permits unlimited freedom of movement between engine and tender.

Its spring-controlled frictional resistance to compression avoids all lost-motion and subsequent destructive shocks to drawbar and pins.

It effectively dampens oscillation between engine and tender.

The E-2 Radial Buffer improves the riding of the locomotive, protects against excessive stress and shock on drawbar and pins and increases safety of locomotive operation.

Its twin, the Franklin Automatic Compensator and Snubber, takes the job of maintaining proper driving box adjustment and further improves smoothness of operation, extends locomotive mileage and reduces maintenance costs, because it protects the foundation of the locomotive.



No locomotive device is better than the replacement part used for maintenance. Genuine Franklin repair parts assure accuracy of fit and reliability of performance.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

683 Atlantic Ave., Boston, Mass. Regular meetings, second Tuesday of each month, except June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

NEW YORK RAILROAD CLUB.—D. W. Pye, 30 Church St., New York, N. Y. Regular meetings, third Friday of each month, except June, July and August, 29 W. 39th St., New York, N. Y.

PACIFIC RAILWAY CLUB.—William S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings, second Thursday of each month, alternately at San Francisco and Oakland, excepting June at Los Angeles and October at Sacramento.

RAILWAY BUSINESS ASSOCIATION.—P. H. Middleton (Treas. and Asst. Sec'y), First National Bank Bldg., Chicago, Ill.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 1941 Oliver Bldg., Pittsburgh, Pa. Regular meetings, fourth Thursday of each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. McC. Price, Allen-Bradley Company, 600 W. Jackson Blvd., Chicago, Ill. Meets with Association of Railway Electrical Engineers.

RAILWAY FIRE PROTECTION ASSOCIATION.—P. A. Bissell, 40 Broad St., Boston, Mass. Annual meeting, October 20-21, 1936 Congress Hotel, Chicago, Ill.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1941 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division, Purchases and Stores Division, and Motor Transport Division, Association of American Railroads.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with Telegraph and Telephone Section of A. A. R., Division I.

RAILWAY TIE ASSOCIATION.—I. C. Rowe, 2091 Railway Exchange Bldg., St. Louis, Mo.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Annual meeting, September 15-17, 1936, Hotel Stevens, Chicago, Ill.

SIGNAL APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with A. A. R., Signal Section.

SOCIETY OF OFFICERS, UNITED ASSOCIATIONS OF RAILROAD VETERANS.—M. W. Jones, Baltimore & Ohio, Mt. Royal Station, Baltimore, Md. Annual meeting, October 3-4, 1936, Hotel Fort Shelby, Detroit, Mich.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, 4 Hunter St., S. E., Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta, Ga.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & C. R. R., Atlanta, Ga.

TOOL FOREMEN SUPPLIERS' ASSOCIATION.—E. E. Caswell, Union Twist Drill Co., 11 S. Clinton St., Chicago, Ill. Meets with American Railway Tool Foremen's Association.

TORONTO RAILWAY CLUB.—R. H. Burgess, P. O. Box 8, Terminal "A," Toronto, Ont. Regular meetings, fourth Monday of each month, except June, July and August, Royal York Hotel, Toronto, Ont.

TRACK SUPPLY ASSOCIATION.—D. J. Higgins, Gardner-Denver Company, 332 S. Michigan Ave., Chicago, Ill. Meets with Roadmasters' and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—Miss E. Earl, acting secretary, 10213 Hampden Avenue, Cleveland, Ohio. Annual meeting September 15-16, 1936, Hotel Sherman, Chicago, Ill.

WESTERN RAILWAY CLUB.—C. L. Emerson, C. M., St. P. & P., Chicago, Ill. Regular meetings third Monday of each month, except June, July, August and September, Hotel Sherman, Chicago, Ill.

Equipment and Supplies

LOCOMOTIVES

THE UNION PACIFIC in conjunction with the General Electric Company will construct the first steam turbine electric locomotive to be operated by an American railroad. The locomotive, which will consist of two 2,500 hp. self-contained units, is described in an article appearing elsewhere in this issue.

Supply Trade

The Inland Steel Company, Chicago, has established a Chicago district sales office with **Leon C. Reed** as district sales manager and **Otto G. Neumann** as assistant district sales manager.

The Corbett Corporation, Sawyer and Winter streets, Houston, Texas, has been appointed Texas sales representatives for the **Globe Steel Tubes Company,** 3839 W. Burnham street, Milwaukee, Wis.

The main plant of the **Pacific Car & Foundry Company,** at Seattle, Wash., was damaged by fire on July 27, a portion of the plant being completely leveled. The estimated damage is $700,000.

L. K. Sillcox, vice-president of the **New York Air Brake Company,** New York, has been appointed first vice-president and **K. E. Keiling,** assistant to the president, has been appointed vice-president and sales manager.

B. C. Tucker, who has been appointed sales representative of the **Union Railway Equipment Company** at Cleveland, as reported in the *Railway Age* of July 25, also continues as president of the **Midland Railway Supply Company.**

OBITUARY

John C. Whitridge, president of the Buckeye Steel Castings Company, died at Columbus, Ohio, July 29.

John G. Platt

John Gilmore Platt, president of the Hunt-Spiller Manufacturing Corporation, Boston, Mass., was drowned Sunday, July 26, in Long Pond, near his summer home at East Harwich on Cape Cod, his motor boat being capsized by the wind. Mrs. Platt and their daughter, Mary, were rescued.

Mr. Platt joined the Hunt-Spiller Manufacturing Corporation in 1907 as mechanical representative. He was made sales manager in 1912, was elected vice-president in 1917, and has been president of the corporation since 1928. He was born in Zanesville, Ohio, February 11, 1874, and attended the public schools of Baltimore, Md. He entered the service of the Baltimore & Ohio in 1889 as a messenger, and a year later became an apprentice in the locomotive department. In 1894 he was made a locomotive draftsman and in 1901 became chief draftsman at Newark, Ohio. He went with the Erie Railroad at Jersey City, N. J., in 1902, as assistant to the master mechanic, and in 1903 was transferred to Meadville, Pa., as engineer of tests. In 1907 he left railroad service and became master mechanic of the Franklin Branch of the American Steel Foundries, leaving that position in the same year to go with the Hunt-Spiller Manufacturing Corporation.

John G. Platt

Mr. Platt always took a keen interest in the Railway Supply Manufacturers' Association and was a member of its executive committee from 1916 to 1920, and chairman of its exhibit committee in 1920. He has also been a member of the governing board of the Railway Business Association, and a member of the finance committee of the New England Railroad Club. He was a director of the Brighton Savings Bank and a member of the Engineers' Club of Boston.

Construction

BALTIMORE & OHIO.—Three contracts involving estimated expenditures totaling approximately $119,000 have recently been awarded by this road. Two of the contracts were awarded to the Empire Construction Company, Baltimore, Md.,—one for reconstruction of a retaining wall at Camden station, Baltimore, at an estimated cost of $48,000 and the other for the construction of an underpass at New York and West Virginia avenue, Washington, D. C., at an estimated cost of $36,000. The third contract, involving an expenditure of approximately $35,000, was awarded to Frainie Brothers, Baltimore, for the construction of freight facilities at Baumer and Bedford streets, Johnstown, Pa.

CHICAGO & NORTH WESTERN—CHICAGO, NORTH SHORE & MILWAUKEE.—Bates & Rogers Construction Company, New York, has received a contract awarded by the state of Illinois for work in connection with the elimination of a grade crossing of these railroads in Lake Forest, Ill. The estimated cost of the work is $130,000.

NEW YORK CENTRAL.—The New York Public Service Commission has approved plans and specifications and an estimate of cost exclusive of land and property damages of $165,400 for the elimination of this road's grade crossing on the Alden-Crittenden county road in Alden, N. Y.

ST. LOUIS-SAN FRANCISCO.—Together with the Missouri State Highway Commission, this company has submitted a joint application to the Missouri State Public Service Commission for authority to construct a reinforced concrete underpass at the junction of its tracks and State Highway No. 30 near Affton, Mo.

Continued on next left-hand page

NO. 1 OF A SERIES ON THE MANUFACTURE OF SECURITY ARCH BRICK

ARCH BRICK CLAY must be Mined!

The clay from which Security Arch Brick are made comes from mines 250 feet deep and 2,000 to 3,000 feet from the shaft—its production is a mining job.

Every step in the production of Security Arch Brick contributes its part to the performance and long service life of the Security Brick Arch.

The first step is the selection of the clay from which the brick is made. This clay isn't "just dug" out of a clay pit—to get the proper clay is a mining job. The mines are 250 feet underground and from 2,000 to 3,000 feet from the shaft.

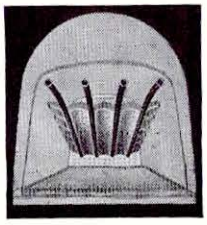
Such clay costs more but the brick are better and last longer—the cost per 1,000 miles of locomotive service is a lot less.

Careful selection of the basic materials is but one of a number of reasons why Security Arch Brick give economical, satisfactory performance under the severe conditions encountered in modern locomotive operation.

There's more to Security Arches than just brick

HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists



AMERICAN ARCH CO.
INCORPORATED

Locomotive Combustion Specialists » » »

Financial

CHESAPEAKE & OHIO.—*Bonds.*—An investment group headed by Morgan, Stanley & Co. has offered, subject to I. C. C. approval, an issue of $29,500,000 of refunding and improvement mortgage Series E 3½ per cent bonds of this company due 1996 at 99½ to yield 3.52 per cent. The proceeds will be used to redeem (at a premium in advance of maturity) outstanding refunding and improvement mortgage 4½ per cent bonds ($24,784,000) and two smaller issues of 5 per cents.

CHICAGO & NORTH WESTERN.—*Abandonment.*—Examiner Schutrumpf of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize the abandonment of portions of branch lines between North Junction, Wis., and South Junction, 13.5 miles, and between Shawano Junction, Wis., and Clintonville, 12.8 miles.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Date for Plan Extended.*—Federal Judge William H. Holly at Chicago on July 27, granted the Chicago, Indianapolis & Louisville an additional 60 days in which to file its plan of reorganization. In petitioning for the extension the carrier indicated that gross income is steadily increasing, but that prospects for the future are indefinite. As every plan must provide for fixed charges out of earnings, it was pointed out, any plan now proposed would not be to the best interests of stockholders and creditors.

CHICAGO, ROCK ISLAND & PACIFIC.—*Labor Intervenes in Reorganization.*—The Interstate Commerce Commission has permitted the intervention of the Railway Labor Executives Association in opposition to this company's plan of reorganization.

CHICAGO, ROCK ISLAND & PACIFIC.—*Injunction Continued.*—A hearing on the petition of the Reconstruction Finance Corporation and the Continental Illinois National Bank and Trust Company to dissolve an injunction issued in 1933 restraining them from disposing of collateral pledged as security for loans to the Chicago, Rock Island & Pacific, was continued to October 6 by Federal Judge James H. Wilkerson, at Chicago on July 16. The action was taken to enable attorneys for the RFC and the bank to examine the reorganization plan filed July 15. At a previous hearing the court had warned that unless the railroad filed a reorganization

DENVER & RIO GRANDE WESTERN.—*Trustees' Certificates.*—The Interstate Commerce Commission has authorized trustees of this company to issue $1,650,000 of their certificates at interest not more than 4 per cent to be sold at not less than par and the proceeds used to pay taxes and for rail and accessories.

DENVER & RIO GRANDE WESTERN.—*Creditors Notice.*—Trustees of the Denver & Rio Grande Western have notified all creditors that all claims against the railroad must be filed before October 15, in accordance with an order of the federal district court, pursuant to section 77 of the bankruptcy act.

DENVER & RIO GRANDE WESTERN.—*Reorganization Plan.*—A reorganization plan for this company, involving the consolidation of the Denver & Salt Lake, the Denver & Salt Lake Western, the Rio Grande Junction and the Goshen Valley and a reduction of fixed interest from $5,749,586 to $2,358,445 was filed with the Interstate Commerce Commission on July 29. Further details of this plan will be published in next week's *Railway Age.*

DENVER & RIO GRANDE WESTERN.—*Certificates of Indebtedness.*—An application of the trustees of the Denver & Rio Grande Western for the issuance of certificates of indebtedness of $1,600,000 for rehabilitating parts of the road has been approved by Judge Symes in the federal district court at Denver, Colo. The certificates will bear interest at not over four per cent and will be retired within five to nine months.

FORT WORTH & RIO GRANDE.—*Sale.*—The proposed sale of the Fort Worth & Rio Grande, a Texas subsidiary of the St. Louis-San Francisco, to the Atchison, Topeka & Santa Fe for $1,519,325 was approved by Federal Judge George H. Moore at St. Louis, Mo., on July 27.

ILLINOIS CENTRAL.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Hedrick, Ind., to West Lebanon, 6.4 miles.

LOUISVILLE & NASHVILLE.—*Acquisition.*—The Interstate Commerce Commission has authorized this company to acquire the property and franchises of the Black Mountain R.R. extending from Blackmont, Ky., to Wilfred, 8.3 miles.

LOUISVILLE & NASHVILLE.—*Abandonment.*—Examiner Jerome K. Lyle of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize the abandonment of the line from Lexington, Tenn., to Perryville, 24.14 miles.

MINNEAPOLIS & ST. LOUIS.—*Dismemberment Hearings.*—Hearings on proposed abandonments of portions of the Minneapolis & St. Louis under the plan proposed by Associated Railways, Inc., were resumed at Minneapolis, Minn., on July 24. The first part of the hearing was occupied by testimony concerning the abandonment of 31 miles from Hopkins, through Excelsior, Victoria, Waconia and Young America, to Norwood. The first witness was M. H. McEwen, general northwestern freight agent of the Chicago, Milwaukee, St. Paul & Pacific, who testified that adequate railroad service would be available for practically all industries at the half dozen towns involved. Another witness in favor of the Hopkins-Norwood abandonment was S. L. Porter of the Milwaukee's accounting department, who said that one reason for scrapping the line is that its operation has resulted in a deficit, after all expenses and taxes, in each of the last six years. E. B. Ploucher, lumber dealer and operator of a bulk oil plant and gasoline service station at Victoria, was the first witness to testify against the abandonment. He said his oil business could not be continued, without railway facilities, in competition with concerns that have rail service at St. Bonifacius and Chaska.

H. W. Ward, freight traffic manager of the Minneapolis & St. Louis, testified that freight traffic on this road increased more than 21 per cent in the first six months of 1936 over the corresponding period of last year, the total number of cars forwarded and received being 46,779 during the first six months of 1936 as compared with 38,572 during the corresponding period last year. H. R. Clarke, chief engineer of the Chicago, Burlington & Quincy, said that on the Oskaloosa-Peoria section more than $5,000 should be spent on bridges and culverts.

On July 27 the seven railroads that propose to buy the M. & St. L. began rebuttal testimony, the first witness being E. Rigg, general freight agent of the Chicago, Rock Island & Pacific. His testimony was designed to contradict that given in opposition to the dismemberment by Frank B. Townsend, of the Minneapolis Traffic Association, and D. L. Kelly, of the South Dakota Railroad Commission. The Rock Island, Mr. Rigg explained, seeks to acquire three pieces of the M. & St. L. trackage in Iowa and in that state already has lines into most of the important markets and shopping centers now served by the M. & St. L. Acquisition of these portions of the M. & St. L. by the Rock Island, he said, would not bring about any disarrangement of rate levels now in effect, as was charged by previous witnesses, who contended that freight rates to and from dozens of Iowa points would necessarily be advanced because the transfer of some lines to new ownership and the abandonment of some trackage would eliminate short, single line hauls. The Rock Island also, Mr. Rigg said, plans to continue the present switching transfer and other service rates now in effect on the M. & St. L. at points where Rock Island service would be substituted.

George L. Teyro, track superintendent of the M. & St. L. from Minneapolis to Albert Lea and Minneapolis to Redwood, and F. G. Clark, in charge of the line to Albert Lea to Fort Dodge and Tara to Des Moines, testified to show that the M. & St. L. is not under-maintained and unsafe. Mr. Teyro said the work for preparing the line for winter operation is 55 per cent completed, while Mr. Clark said there would be no need for major rebuilding if the present maintenance program is continued.

MISSOURI PACIFIC.—*Protective Committee.*—The Interstate Commerce Commission has authorized C. H. Thornton, J. M. Kemper and A. J. Sevin to act as a protective committee for either the preferred or common stock of this company, whichever it may elect. The committee sought authority to represent the 20-year 5½ per cent series A convertible bonds of 1949, the 5¼ per cent secured serial bonds, the convertible 5 per cent cumulative preferred stock and the common stock.

NEW YORK, NEW HAVEN & HARTFORD.—*Old Colony Trustees.*—The Reconstruc-

Continued on next left-hand page

The Superheater

AS A FACTOR IN LOCOMOTIVE DESIGN

Each of the following features is being discussed in this series of advertisements.

Maximum Ton Miles per Hour

•

Boiler Capacity and Tractive Effort

•

Heating Surface and Boiler Capacity

•

Heating Surface and Boiler Efficiency

•

Minimum Draft Loss and Low Back Pressure

•

High Sustained Superheat

•

Higher Superheat and Minimum Steam Consumption

•

Greater Sustained Capacity

•

Reduced Fuel and Water Consumption per Unit of Work Done

•

Total Fuel Consumption of American Railroads

•

Reduced Cost of Locomotive Horsepower

For High Efficiencies Use Elesco Type "E" Superheaters

✓
✓
✓
✓
✓
✓

6

High Sustained Superheat

A very valuable feature of the type "E" superheater is the fact that high sustained superheat is obtainable not only at high capacities but also at low or medium rates of operation. This is due to the large heating surface in the type "E" superheater and is most valuable as it tends to maintain high cylinder efficiency at all rates of operation.

Curves in Figure No. 1 show comparative superheat obtained, plotted against dry coal in two tests with the same locomotive and under identical operating conditions; locomotive was stoker fired and without feed water heater, the only difference being the type of superheater.

Curves in Figure No. 2 show comparative superheat obtained with type "E" and type "A" superheaters on two freight locomotives, plotted against equivalent evaporation.

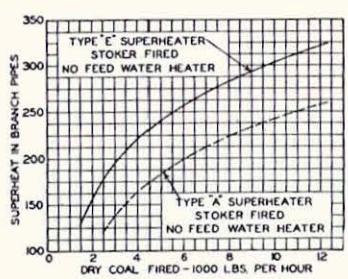


Fig. No. 1

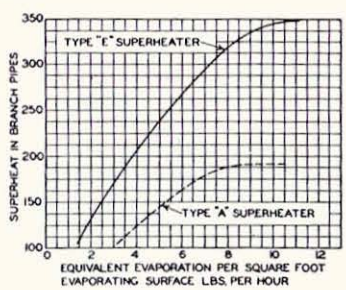


Fig. No. 2

THE SUPERHEATER COMPANY

Representative of American Throttle Company, Inc.

60 East 42nd Street
NEW YORK

ELESCO

Peoples Gas Building
CHICAGO

Canada: The Superheater Company, Limited, Montreal

Superheaters • Superheated Steam Pyrometers • Exhaust Steam Injectors • Feed Water Heaters • American Throttles

tion Finance Corporation has been authorized by the Interstate Commerce Commission to intervene in opposition to the ratification of the appointment of the New Haven trustees (Howard S. Palmer, W. M. Daniels and J. L. Loomis) as trustees also of the Old Colony Railroad.

PENNSYLVANIA - READING SEASHORE LINES.—*Bonds.*—The Interstate Commerce Commission has authorized the West Jersey & Seashore to extend for 10 years the maturity date of $4,112,000 of first consolidated mortgage 3½ per cent bonds which fell due July 1; the Seashore Lines and their parent companies assuming obligation for principal and interest payments.

PETERBOROUGH & HILLSBOROUGH. — *Bonds.*—The Interstate Commerce Commission has authorized the extension to July 1, 1941, of the maturity date of $100,000 of first mortgage bonds of this company which fell due July 1 this year.

TRINITY VALLEY SOUTHERN.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon its entire line extending from Dodge, Tex., to Oakhurst, 5.9 miles.

UNION PACIFIC STAGES, INC.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire the Burns Stage Line, operating in Washington and Idaho, at a price of $30,000.

VALLEY.—*Abandonment of Operation.*—The Interstate Commerce Commission has authorized this company to abandon operation over the line of the Kinzua-Hemlock R.R. from Kushequa, Pa., to Westline, 9.4 miles.

VIRGINIAN. — *Merger.* — The Interstate Commerce Commission has authorized the merger into one company for ownership and operation this company, the Virginian & Western and the Virginian Terminal.

WEST CLARION.—*Merger.*—The Interstate Commerce Commission has authorized the merger of the properties of this company and those of the Brockport & Shawmut, the former being also authorized to issue $22,400 of capital stock in exchange for a like amount of that of the latter.

WESTERN MARYLAND. — *Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon a branch line from Charlton, Md., to Snyder, W. Va., 5.014 miles, including side-tracks.

Average Prices of Stocks and of Bonds

	July 28	Last week	Last year
Average price of 20 representative railway stocks..	54.74	53.98	35.60
Average price of 20 representative railway bonds..	80.95	80.73	74.82

Dividends Declared

Bangor & Aroostook.—63c, quarterly, payable October 1 to holders of record August 31; Preferred, $1.75, quarterly, payable October 1 to holders of record August 31.

North Pennsylvania.—$1.00, quarterly, payable August 25 to holders of record August 18.

Portland.—$2.50, semi-annually, payable August 1 to holders of record July 11.

Railway Officers

EXECUTIVE

J. R. Hayden, assistant traffic manager of the Atchison, Topeka & Santa Fe, with headquarters at San Francisco, Cal., has been promoted to assistant to the president, with the same headquarters.

FINANCIAL, LEGAL AND ACCOUNTING

Thomas W. Bockes, assistant western general counsel of the Union Pacific, has been appointed general solicitor, with jurisdiction in Nebraska, Kansas, Iowa, Missouri, Colorado and Wyoming, with headquarters as before at Omaha, Neb., to succeed **Charles A. Magaw,** who has retired effective August 1.

OPERATING

Don S. Colby, who has been appointed superintendent of the Fargo division of the Northern Pacific, with headquarters at Fargo, N. D., has been connected with this company for about 34 years. He was born on May 13, 1883, at Ypsilanti, N. D., and entered the service of the Northern Pacific in October, 1902, as a freight trucker at Jamestown, N. D. From March,

Don S. Colby

1903, to March, 1906, Mr. Colby served as a freight brakeman, then being appointed a freight conductor, which position he held until May, 1917, when he was advanced to trainmaster. In October of the same year Mr. Colby left the railroad to enter military service, becoming attached to the Russian Railway Service Corps in Siberia. In July, 1920, he returned to the Northern Pacific as a trainmaster on the Dakota division, being transferred to the Pasco division later in the same year. On March 1, 1925, Mr. Colby was appointed acting assistant superintendent at Billings, Mont., serving in this position and as trainmaster on various divisions until August 15, 1927, when he was advanced to assistant superintendent at Staples, Minn. On August 1, 1928, he was promoted to superintendent of the Dakota division, being transferred to the Idaho division on December 1, 1929. From January 1, 1932, until his recent appointment as superintendent, which was effective on July 16, he served as assistant superintendent at Pasco.

TRAFFIC

E. T. Hoffman has been appointed district freight agent for the Baltimore & Ohio, with headquarters at Philadelphia, Pa., succeeding **S. Vern Leonard,** who has been assigned to other duties.

Thomas B. Gallaher, general freight and passenger agent of the Atchison, Topeka & Santa Fe, with headquarters at Amarillo, Tex., has been promoted to assistant to the vice-president in charge of traffic, with headquarters at Chicago.

James Selwyn Branch, whose appointment as general freight agent-solicitation for the Virginian at Norfolk, Va., effective August 1, was noted in the *Railway Age* of July 25, was born on January 22, 1904, at Edenton, N. C. He attended high school in Norfolk and Southern Business University in that city. Mr. Branch entered railroad service on November 15, 1924, with the Virginian and served as secretary to the traffic manager until his appointment as traveling freight agent on January 1, 1930. On April 1, 1932, he was appointed commercial agent, the position he held until his recent appointment as general freight agent-solicitation.

P. P. Hastings, general freight agent, on the Atchison, Topeka & Santa Fe at San Francisco, Cal., has been promoted to the newly-created position of assistant freight traffic manager at the same point. **M. C. Burton,** general industrial agent at Topeka, Kan., has been appointed general freight and passenger agent at Amarillo, Texas, succeeding **Thomas B. Gallaher. H. C. Vincent,** general agent at Stockton, Cal., has been appointed to the newly-created position of assistant general freight agent at Los Angeles. **W. J. Dundon,** chief clerk in the freight traffic department at Chicago, has been appointed to the newly-created position of assistant general freight agent at the same point. **B. M. Gillespie,** chief clerk in the freight traffic department at Topeka, has been appointed assistant general freight agent with the same headquarters, also a newly created position. **J. J. Shaughnessy,** western traffic manager of the Santa Fe Trail Stages, has been appointed traffic manager of the highway motor transport department at Chicago.

Hector C. Mitchell, whose appointment as assistant traffic manager for the Virginian at Norfolk, Va., effective August 1, was noted in the *Railway Age* of July 25, was born on November 7, 1879, at Bristol, England. Mr. Mitchell entered railroad service in September, 1893, as office boy in the car accountant's office of the Chicago, Milwaukee & St. Paul (now C. M. St. P. & P.) at Chicago, Ill. From

Continued on next left-hand page

NEW POWER
ON THE CANADIAN NATIONAL

LOCOMOTIVE 6400

is one of five partially streamlined locomotives built for heavy fast passenger service on the Canadian National Railways.

Weight on Drivers, 236,000 pounds; . . . . . Weight of Engine, 379,800 pounds; Cylinders, 24x30 inches; Diameter of Drivers, 77 inches; Boiler Pressure, 275 pounds; Maximum Tractive Power, 52,500 pounds.

THESE new locomotives, the largest streamlined steam engines in the world, will go into service on the route of the International Limited. They are capable of maintaining continuous runs from Montreal to Sarnia, a distance of 550 miles, and of greater uninterrupted mileage if necessary.

Their construction was part of a plan to provide increased employment. But, according to Canadian National motive power officials, their employment to meet the exacting needs of specific services will produce sufficient savings to more than justify the investment and the replacement of older types of locomotives.

MONTREAL LOCOMOTIVE WORKS, LIMITED

MONTREAL CANADA

Chicago Terminal division. In 1923 he was further advanced to special engineer, reporting to the chief engineer, and on February 1, 1929, he was promoted to engineer maintenance of way. In 1930 Mr. Hughes was appointed engineer maintenance of way of the First district, with headquarters at Des Moines, Iowa, and on July 1, 1932, when the position of engineer maintenance of way of the First district was abolished, he was appointed division engineer of the Nebraska-Colorado division, with headquarters at Fairbury, which position he was holding at the time of his recent appointment as district maintenance engineer of the First district, with headquarters at Des Moines, Iowa.

MECHANICAL

Thomas J. McDermott, whose appointment as mechanical engineer of the Delaware, Lackawanna & Western at Scranton, Pa., was noted in the *Railway Age* of July 18, entered the service of the Lackawanna in 1903 as machinist's apprentice in the Scranton locomotive shops. He completed his apprenticeship in the drawing room in 1907, and in 1908 became assistant chief draftsman on locomotive work, power plant and shop layout. In 1910 he was appointed leading draftsman

Thomas J. McDermott

for shop and power plant work and in 1916 he became leading draftsman with supervision over the drawing room. Mr. McDermott was assigned to special work in 1919 and was in charge of mechanical branch inventory and for I.C.C. order No. 8 covering equipment, machinery and power plant, reporting to the valuation engineer. Mr. McDermott has been chief draftsman of the motive power department since 1920.

PURCHASES AND STORES

Guy O. Beale, whose appointment as chief purchasing and stores officer of the Chesapeake & Ohio, the New York, Chicago & St. Louis and the Pere Marquette was reported in the *Railway Age* of July 25, has been connected with the C. & O. for about 26 years. He was born on September 24, 1888, at Ettricks, Va., and after a business college education, he attended the law school of the University of Rich-

Guy O. Beale

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SPECIAL

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L. W. Horning has been appointed regional director, Eastern Region, Competitive Transportation Research, Association of American Railroads, succeeding **R. J. Littlefield,** who has returned to service with the Pennsylvania. Mr. Horning was born at Seymour, Ind., on November 2, 1898, and attended Indiana University and Benjamin Harrison law school in Indianapolis. He entered the service of the American Express Company on April 16, 1916, at Indianapolis and since that time has been continuously employed by that company and its successors, the American Railway Express Company and Railway Express Agency, Inc., as chief clerk, terminal agent, superintendent of vehicles, route agent and attorney. Mr. Horning was admitted to the bar on May 10, 1927, and represented the Railway Express Agency exclusively until August 1, 1933, when he was employed as attorney for the legal committee of 18 Indiana railroads and the Railway Express Agency, Inc. For a short time Mr. Horning was secretary of the Legislative committee, Indiana Lines, and for three years was chairman of the Legislative committee, Railroad Employees' and Taxpayers' Association of

L. W. Horning

Indiana. At the time of his appointment to his present position he was a director of the Indianapolis Convention and Publicity Bureau.

OBITUARY

George Boyce, superintendent telegraph and signals of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at St. Paul, Minn., died at his home at White Bear Lake, Minn., on July 26. Mr. Boyce was born on March 2, 1868, near Parkhill, Ont., and entered railway service on August 31, 1885, as a telegraph operator on the Grand Trunk (now part of the Canadian National). In the following year he entered the service of the Chicago, St. Paul, Minneapolis & Omaha as a telegrapher, holding this position until 1889, when he entered the telegraph and signal department. In this department he served successively as wire chief, secretary to superintendent telegraph and signals, chief clerk and acting telegrapher until 1900, when he was promoted to signal engineer. Since April 1, 1909, Mr. Boyce had held the position of superintendent telegraph and signals.

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is one of five partially streamlined locomotives built for heavy fast passenger service on the Canadian National Railways.

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MONTREAL LOCOMOTIVE WORKS, LIMITED

MONTREAL CANADA

1893 to 1907 he served as car record clerk, assistant chief clerk, car distributor and freight solicitor for that road. From 1907 to 1920 Mr. Mitchell was traveling freight agent of the St. Joseph & Grand Island (now part of the Union Pacific) at Chicago and general agent for that road at Pittsburgh. During the war period he served as purchasing agent and traffic manager in government construction work directly under the Rust Engineering Company, Pittsburgh. From 1920 to 1922 he served as general agent for the Virginian at Pittsburgh, and from 1922 to 1932 as assistant general freight agent. Mr. Mitchell was appointed general freight agent in 1932, the position he held until his recent appointment as assistant traffic manager.

ENGINEERING AND SIGNALING

G. E. Yahn, roadmaster on the Chicago, Burlington & Quincy at Galesburg, Ill., has been appointed district engineer maintenance of way of the Central district, with headquarters at Burlington, Iowa, to succeed **W. O. Frame,** whose appointment as assistant superintendent at Wymore, Neb., was noted in the *Railway Age* for July 11.

S. J. Polson, assistant track supervisor on the New York, New Haven & Hartford, with headquarters at Framingham, Mass., has been appointed assistant division engineer of the Providence division, with headquarters at Providence, R. I., to succeed **J. B. Bell,** who has been transferred to the Boston division, with headquarters at Boston, Mass. Mr. Bell succeeds **A. A. Cross,** who has been appointed office assistant in the office of the engineer maintenance of way at New Haven.

E. F. Manson, division engineer of the Missouri division (now abolished) of the Chicago, Rock Island & Pacific, with headquarters at Trenton, Mo., has been transferred to the Nebraska-Colorado division, with headquarters at Fairbury, Neb., to succeed **L. J. Hughes,** who has been appointed district maintenance engineer of the First district. **R. R. Bragg** has been appointed division engineer of the Cedar Rapids-Dakota division at Cedar Rapids, Iowa, to succeed **W. E. Heimerdinger,** who has been appointed district maintenance engineer of the Second district.

Harold T. Livingston, who has been appointed district maintenance engineer of the Third district of the Chicago, Rock Island & Pacific, at El Reno, Okla., as announced in the July 4 issue, was born on November 10, 1888, at Golden City, Mo. Mr. Livingston graduated from the University of Missouri, Columbia, Mo., with the degree of bachelor of science in civil engineering. Following his graduation, he taught mathematics at the Santa Monica Military Academy in California, and served as an assistant in the engineering department of the Southern Pacific at Mojave, Cal. He entered the service of the Rock Island on May 15, 1909, as an instrumentman at Topeka, Kan. In 1915, after occupying various minor positions, he was promoted to assistant engineer on the Iowa division, at Cedar Rapids, Iowa, then being transferred to Manly, Iowa,

Harold T. Livingston

and later back to Cedar Rapids. Mr. Livingston was appointed master carpenter at Cedar Rapids in 1916, where he remained until 1917, when he enlisted in the United States Army. During the World War he served in France as captain of Company E, 313th Engineers, 88th division. In 1919 he returned to railway service as division engineer of the Minnesota division of the Rock Island at Manly. Subsequently he was transferred successively to Des Moines, Iowa, and to Little Rock, Ark., and on January 16, 1930, he was appointed engineer of construction at Chicago. On May 16, 1936, he was appointed acting assistant superintendent at Little Rock, Ark., which position he was holding at the time of his recent appointment as district maintenance engineer of the Third district.

Frank T. Beckett, who has been appointed assistant chief engineer of the Chicago, Rock Island & Pacific, as announced in the *Railway Age* of July 18, has served in engineering capacities on various western lines for nearly 40 years. He was born on October 2, 1870, at Frankfort, Kan., and entered railway service on March 23, 1897, as a chainman on the Atchison, Topeka & Santa Fe, later serving as a rodman and instrumentman on this road. In April, 1900, he went with the Chicago, Burlington & Quincy as an assistant engineer on double track construction in western Iowa, leaving this company in June, 1902, to return to the Santa Fe as an assistant engineer on construction in New Mexico. On January 1, 1903, he was advanced to division engineer at San Marcial, N. M., and from September, 1906, to March, 1908, he served as an assistant engineer on construction and location in Oklahoma and New Mexico. From March 1, 1908, to November 1, 1913, he was with the El Paso & Southwestern (now part of the Southern Pacific) as a resident engineer. At the end of this period he entered the service of the Rock Island as engineer maintenance of way of the Second district at El Reno, Okla., and in 1932 he was advanced to engineer maintenance of way of the system, with headquarters at Kansas City. He was holding the latter position at the time of his recent appointment as assistant chief engineer, with the same headquarters.

Frank T. Beckett

Lorne J. Hughes, who has been appointed district maintenance engineer of the First district of the Chicago, Rock Island & Pacific, was born on August 24, 1884, at Billerica, P. Q., and was graduated from Rennselaer Polytechnic Institute in 1905. After serving in the engineering department of the American Bridge Company, Mr. Hughes entered railroad service on October 1, 1906, as a draftsman in the bridge department of the Rock Island, being advanced to assistant engineer at Davenport, Iowa, in 1910. In 1911 he was promoted to division engineer at Dalhart, Tex., being subsequently transferred successively to Eldon, Mo., and Herington, Kan. In 1917 he was promoted to special engineer, reporting to the chief engineer, and during the World War he saw active service in France as a captain in the 108th Engineers. On the close of the war, he was appointed inspector of maintenance of way of the corporate organization of the Rock Island, and later was promoted to division engineer of the

Lorne J. Hughes

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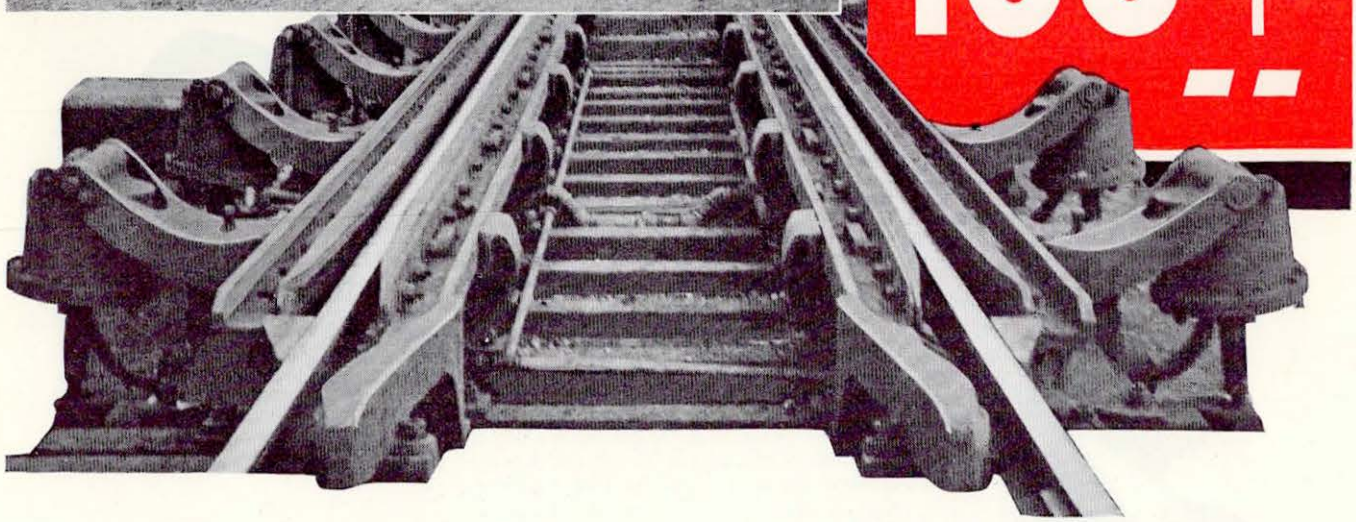
"They performed practically 100%"



. . . says the superintendent of a large road in referring to "Union" Electro-Pneumatic Car Retarders. "It was the opinion of a good many people that when severe weather came along the first thing to shut down would be the electro-pneumatic hump, but the past winter proved to be the exact opposite. The performance of these two plants was very gratifying. In fact, our experience impresses us with the fact that the hump would be the last thing to shut down." » » » » » » » » » »

Last winter was one of the most severe we have had in many years. Next winter may be equally severe. Our nearest office will be glad to explain how the "Union" Model 31 Electro-Pneumatic Car Retarder will help prepare for it as well as to help meet modern accelerated freight schedules with increased safety and economy. » » » » » » » » »

"UNION" MODEL 31 ELECTRO-PNEUMATIC CAR RETARDERS

1104

1881 **Union Switch & Signal Co.** 1936

SWISSVALE, PA.

NEW YORK MONTREAL CHICAGO ST. LOUIS SAN FRANCISCO

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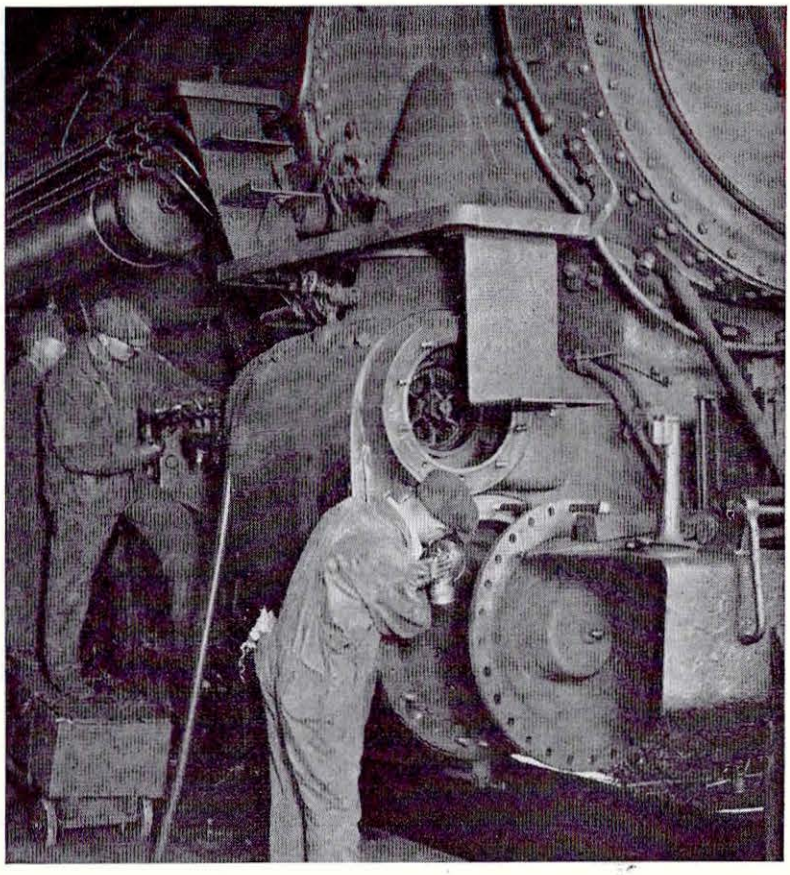
HSGI SERVICE
The Best Proof of QUALITY



EVIDENCE of the economies effected by the use of HUNT-SPILLER *Air Furnace* GUN IRON can be found in the locomotive records of many leading railroads.

These records show exceptional mileage between renewal of parts—high operating efficiency—low fuel consumption and big savings in running and classified repairs.

The most convincing evidence of the economical service built into HUNT-SPILLER *Air Furnace* GUN IRON is the performance of applications on modern power. Severe requirements merely serve to emphasize its unusual wear-resisting properties.

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Cylinder Bushings
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Valve Bushings
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Valve Bull Rings
Crosshead Shoes
Hub Liners
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Floating Rod Bushings

Parts Finished For Application

Dunbar Sectional Type Packing
Duplex Sectional Type Packing
for Cylinders and Valves
(Duplex Springs for Above
Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

HUNT-SPILLER MFG. CORPORATION
J. G. Platt Pres. & Gen. Mgr. / \ V. W. Ellet Vice-President

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A 20-TON GLASS "EYE" GOES TRAVELING

More precious than jewels, and protected as carefully, this 200-inch disc for the mirror of the world's largest telescope recently completed its trip from New York to California. A special container and special car were used and low speed was ordered all the way... but standard Industrial Brownhoists loaded it at the beginning and unloaded it at the end of the journey.

Why are Industrial Brownhoist cranes chosen for so many of these important tasks? If you'll ask any one of the thousands of owners who use them on every-day work of handling materials with bucket, hook or magnet, you will know the answer. There is a size, type and power for every service.

GENERAL OFFICES BAY CITY, MICHIGAN **INDUSTRIAL BROWNHOIST** NEW YORK, PHILADELPHIA CLEVELAND, CHICAGO

Crapo GALVANIZED PRODUCTS

Tried and Proved in Actual Service

Crapo Galvanized Wire and Strand have earned their reputation for long life and low maintenance cost by actual performance on the "firing line."

The *pure zinc* galvanizing, thoroughly bonded to the wire, has proved its ability to resist corrosion under the most adverse conditions and long after other coatings have failed.

Specify genuine *Crapo* Galvanized Wire and Strand—for greater dependability!

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Telephone and Telegraph Wire

Steel Strand

Railway Age Book Guide

Here is a handy reference booklet on railroad books that are of interest to readers of "Railway Age." In it are described practically all of the books published during the past decade that are in print. They are classified under subject headings and arranged in chronological order. A title index in the back facilitates quick reference.

SUBJECT INDEX

Accounting — Administration — Consolidation — Co-ordination — Economics — Finance — General — History — Law — Officers — Personnel — Rates — Regulation — Statistics — Traffic Management — Valuation.

1936. 28 pages, 6 x 9 inches, paper cover.

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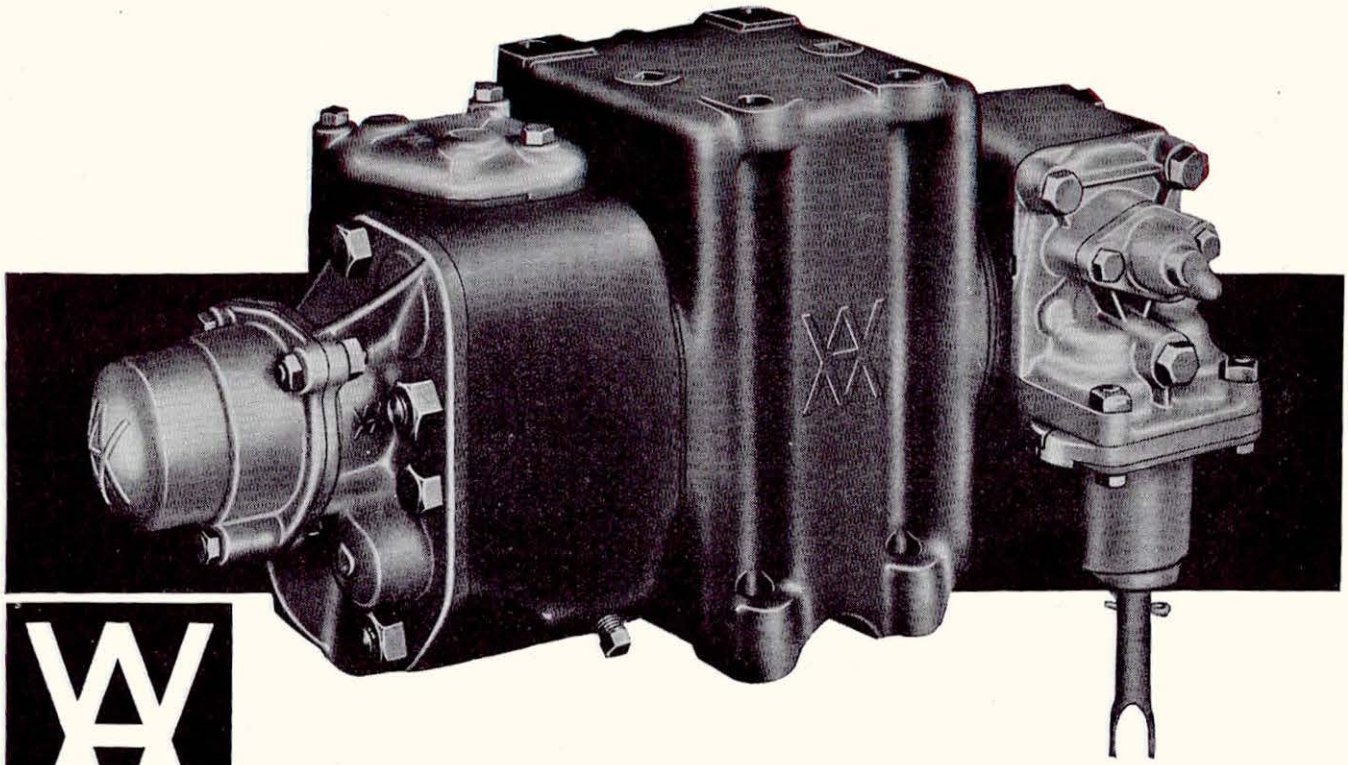

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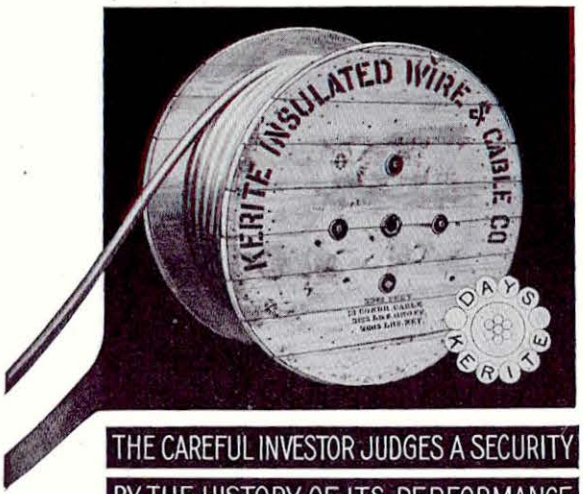

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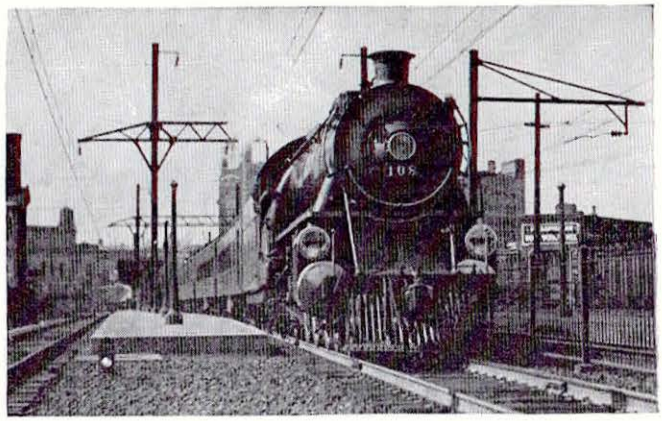

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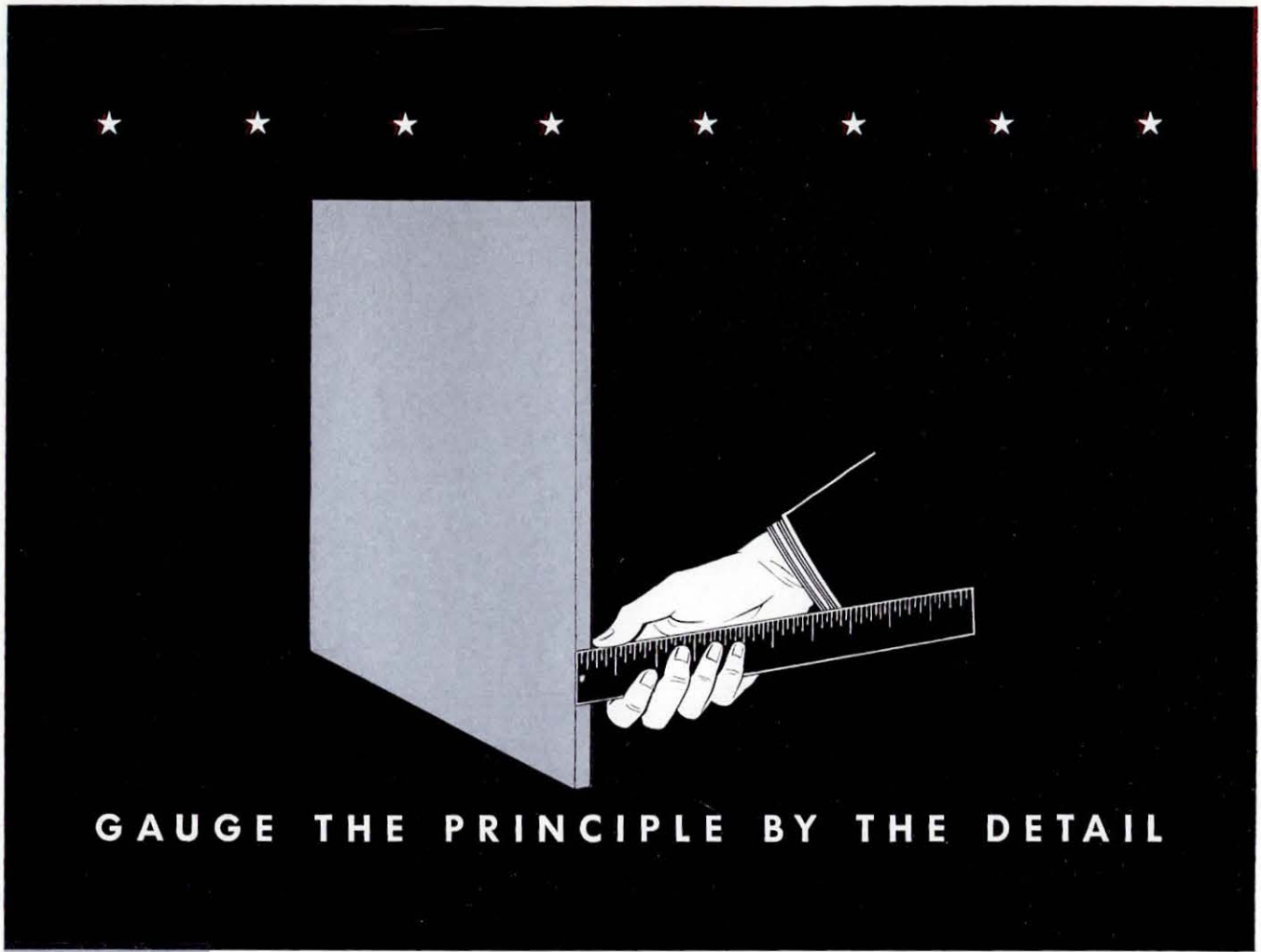

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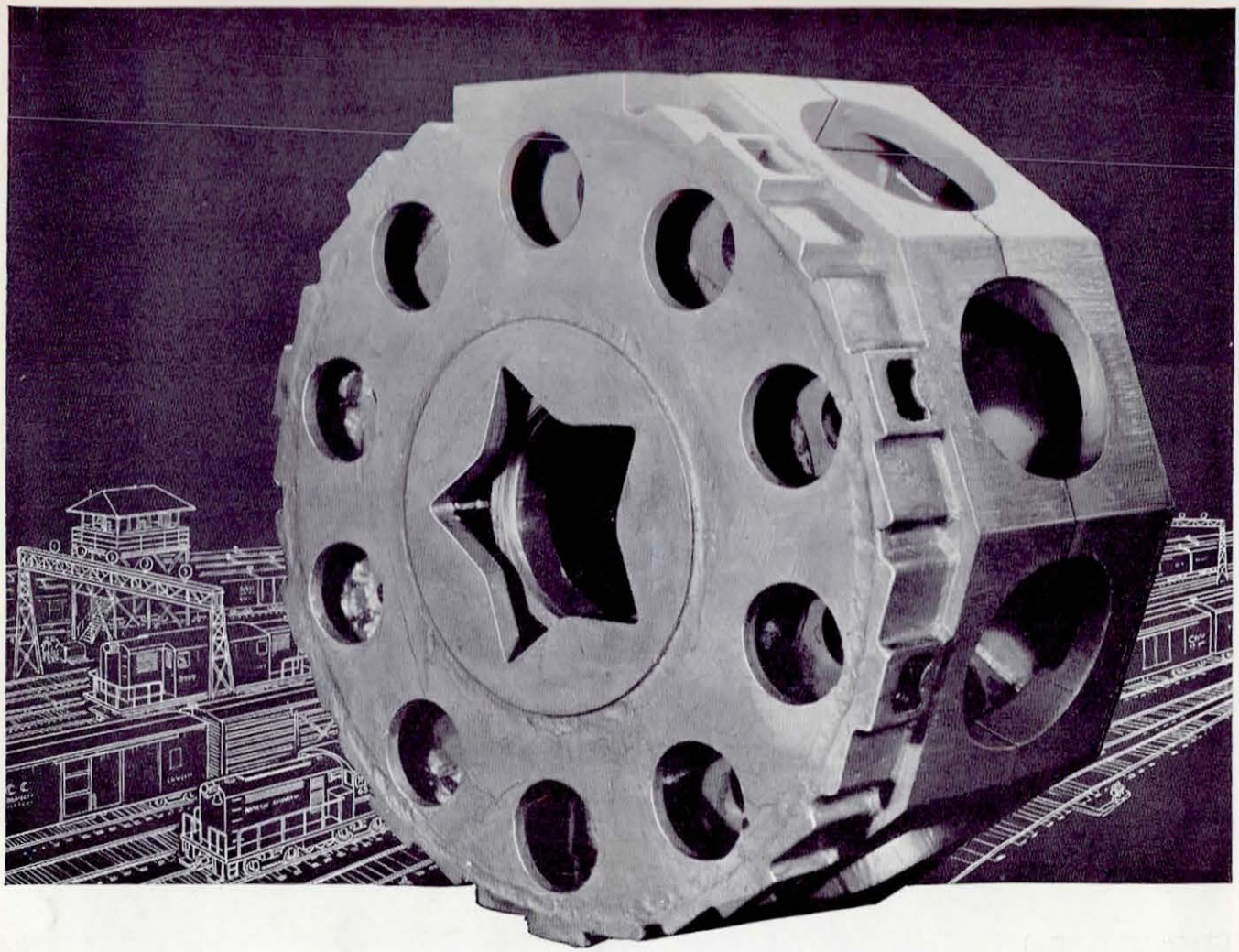

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